



**Industria y Comercio**  
**SUPERINTENDENCIA**

**PCT**

SOLICITUD

**PATENTE DE INVENCION**

**03-112933**

21. EXPEDIENTE N°

54. TÍTULO Máquina para enrollar tubos de diámetro  
pequeño In situ

51. CLASIFICACIÓN INTERNACIONAL F16L 58/02

71. SOLICITANTE Rib Loc Australia Pty Ltd.

DOMICILIO Australia

74. APODERADO Dalia Maria Rodriguez D'Aleman

22. BOGOTÁ, D. C. D.C. 17, 2003

**FORMULARIO ÚNICO DE SOLICITUD DE PATENTE**  
**PCT**  
**ENTRADA EN FASE NACIONAL**

1) **SOLICITUD DE:**

☒ Patente de invención

☐ Patente de Modelo de Utilidad

☐ Capítulo I.

☒ Capítulo II.

2) **SOLICITANTE**  
(71)

Nombre: **RIB LOC AUSTRALIA PTY LTD.**

Dirección: **587 Grand Junction Road, Gepps Cross, S.A. 5094 Australia**

Nacionalidad o domicilio: **South Australia, Australia**

Lugar de constitución: **South Australia, Australia**

**IDENTIFICACIÓN**

C.C. ☐ NIT: ☐

C.E. ☐ OTRO ☐

NÚMERO ☐ Cual ☐

Teléfono:

Fax:

E. Mail:

3) **REPRESENTANTE**  
**O APODERADO**

Nombre: **DILIA MARÍA RODRÍGUEZ D'ALEMAN**

Dirección: **Carrera 11 N°. 93-43 Of. 404 Santafé de Bogotá D.C.**

Teléfono: **6350835** Fax: **6350824**

E. Mail:

**clarkemodet@clarkemodet.com.co**

**IDENTIFICACIÓN**

C.C. ☒ NIT: ☐

C.E. ☐ OTRO ☐

NÚMERO: **41.654.882**  
TP: **20824 CSJ**

4) **INVENTOR (ES)**  
(72)

Nombre: **1. BATEMAN, Ian, Roger.**

Dirección: **1. 6 Charlson Rise, Happy Valley, S.A. 5159 Australia**

Nacionalidad o Domicilio: **Australia**

5) **PCT (86)**

Solicitud Internacional No. **PCT/AU02/00736** Fecha: **Junio 7, 2002**

Publicación Internacional No. **WO 02/101278 A1** Fecha: **Diciembre 19, 2002**

6) **Título (54) MÁQUINA PARA ENROLLAR TUBOS DE DIÁMETRO PEQUEÑO IN SITU**

7) **Clasificación Internacional: F16L 58/02, 58/16, 57/96, 55/162**

8) **PRIORIDAD**

SI ☒ NO ☐

33) País de Origen

(32) Fecha

(31) Número de Solicitud

**AUSTRALIA**

**JUNIO 8, 2001**

**PR5572**

9) **Comprobante de pago N° 03-89.494 Fecha: Diciembre 9, 2003**

Instrucciones para el diligenciamiento del presente formulario. Ver reverso de esta pagina

2

NIT : 800176089-2

DEPECINDUSTRIA Y COMERCIO

Radicacion : 02112933 00000000

Folios: 72

Fecha (MD): 2003-12-29 16:44:15

Tramite : 011 PCI-PATENT 379 FASE NUCI 411 PRESEMIAC

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

RECIBO OFICIAL DE CAJA : 03 - 39,494  
FECHA : DICIEMBRE 9 DE 2003

\*\*\*\*\* CONSIGNACION \*\*\*\*\*

| DEPOSITANTE                 | TIPO PAGO    | BANCO         | CUENTA      | No. PAGO | FECHA PAGO | Vr. PAGO     |
|-----------------------------|--------------|---------------|-------------|----------|------------|--------------|
| CLARKE NODET Y CO. COLOMBIA | CONSIGNACION | BANCO POPULAR | 050-00110-6 | 14329289 | 09/12/2003 | 2,116,000.00 |

\*\*\*\*\* CONCEPTO \*\*\*\*\*

| CANT. CONTABILITICO       | CONCEPTO                            | TOTAL CONCEPTO |
|---------------------------|-------------------------------------|----------------|
| 1 50005-01-01 SOLICITUDES | 1 TRAMITES DE SOL. DE PATENTE DE IN | 400,000.00     |
|                           | TOTAL :                             | \$ 400,000.00  |

SON: CUATROCIENTOS MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. \_\_\_\_\_

P506

4

10)

ANEXOS

☒

Comprobante de pago de la tasa de presentación de la solicitud

☐

Comprobante de pago por reivindicación de prioridad

☒

Documento que acredita la existencia y representación legal cuando el solicitante sea persona Jurídica

☒

Poderes, si fuera el caso

☒

Documento de cesión del inventor al solicitante o a su causante

☐

Declaraciones

☒

Copia de la solicitud Internacional. (Resumen, descripción, reivindicación, Dibujos).

☒

Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicación, Dibujos)

☒

Copia del examen preliminar efectuado por la IPEA

☐

De ser el caso, copia del contrato de acceso

☐

De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas

☐

De ser el caso, certificado de depósito del material biológico

☒

Arte final 12 x 12 y 6 x 6 cm

☐

De ser el caso, Información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionados parcial o totalmente con la invención de esta solicitud.

☐

Otros

1. Opinión escrita

2. Solicitud PCT

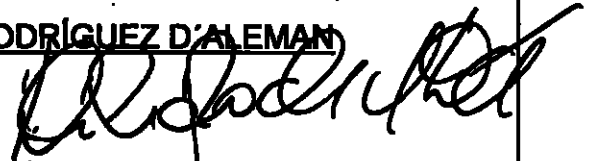
3. notificación de presentación y transmisión del documento de prioridad

4. Notificación de países designados

11) FIGURA CARACTERÍSTICA:

12) Solicitud concesión de la patente,

NOMBRE: DILIA RODRÍGUEZ D'ALEMAN

FIRMA: 

C.C. 41.654.882 de Bogotá TP 20824 CSJ

Instrucciones para el diligenciamiento del presente formulario. Ver reverso de esta pagina

1

**-COLOMBIA-****CESION**

El (la) abajo firmante (En adelante EL CEDENTE)

En su carácter de representante legal de

con domicilio en

por el presente documento declara que cede todos y cada uno de los derechos que le correspondan o puedan corresponderle sobre la/s siguiente/s en Colombia:

con domicilio en

(En adelante llamada LA CESIONARIA) quien acepta la cesión que aquí se le hace y autoriza a DILIA MARIA RODRIGUEZ D'ALEMAN, tp. 20824 y CLAUDIA LUCIA CARO RAMIREZ, tp. 36448, con domicilio en Santa Fé de Bogotá, Colombia, para que actuando en su orden, en nombre del (de los) otorgante (s) tramiten hasta su terminación la inscripción de la presente cesión.

En prueba de la mutua aceptación de esta cesión ambas partes CEDENTE y CESIONARIO firman el presente documento.

Dado y firmado en  
A los                      días de                      de

El Cedente/The Assignor

NOTA: Este documento debe ser otorgado ante Notario Público y legalizado por el Cónsul de Colombia, en el cual el Señor Cónsul deberá dejar constancia de que las compañías actualmente existen legalmente y ejercen su objeto social, que quien firma está autorizado para ello y tuvo a la vista los documentos que lo prueban.

03/34  
TRADUCCION OFICIAL No. \_\_\_\_\_  
JUAN PABLO PIEDRAHITA AGUILERA  
TRADUCTOR E INTERPRETE OFICIAL  
RES. 718 DE MAYO 2003  
DEL MIN. INTERIOR Y DE JUSTICIA

**ASSIGNMENT**

The undersigned (hereinafter THE ASSIGNOR)

Ian Roger Bateman

domiciled at

6 Charlson Rise, Happy Valley, 5159, South Australia, Australia

do hereby declares that it assigns all and each of his rights and privileges on the following in Colombia:

**SMALL DIAMETER IN-SITU PIPE WINDING MACHINE**

to

Rib Loc Australia Pty Ltd

with domicile in

587 Grand Junction Road, Gepps Cross, 5094, South Australia, Australia

(Hereinafter THE ASSIGNEE) who accepts the assignment hereby done and authorizes to DILIA MARIA RODRIGUEZ D'ALEMAN, tp. 20824 and CLAUDIA CARO RAMIREZ, tp. 36448, residing in Santa Fé de Bogotá, Colombia, in the order of their appointment on behalf of grantors to process until its completion the registration of this assignment.

As a proof of the mutual acceptance of this assignment, both parties ASSIGNOR and ASSIGNEE sign the present document.

Granted and signed at

Adelaide, SA

On this 25 day of November of 2003.

Signature

Ian Roger Bateman (Assignor)

On behalf of Rib Loc Australia Pty Ltd

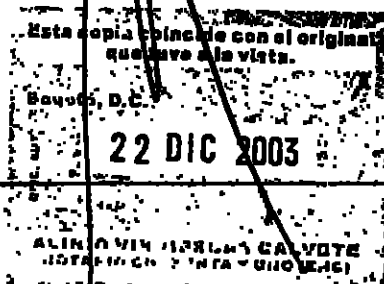
Full Name:

Ian Roger Bateman

Signature:

[Signature]

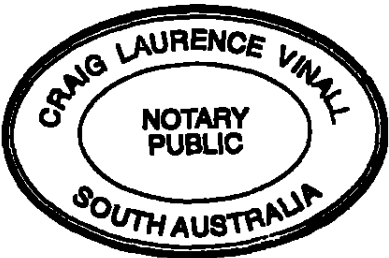
NOTE: This document must be signed before a Notary Public and legalized before the Colombian Consul, in which the Consul must certify that the corporations actually legally exist, exercise the corporate purposes, the grantors are authorized to sign and that the documents evidencing those circumstances were exhibited to him.



I do hereby certify that Rib Loc Australia Pty Ltd of 587 Grand Junction Road, Gepps Cross, 5094, South Australia, Australia, is a corporation duly organized under the laws of Australia, and that Ian Roger Bateman is a lawful representative of said corporation and is authorized to execute certain documents relating to industrial property matters on behalf of the corporation.

*C. Vinall*

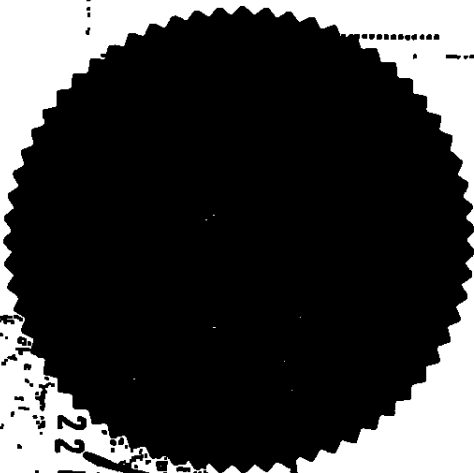
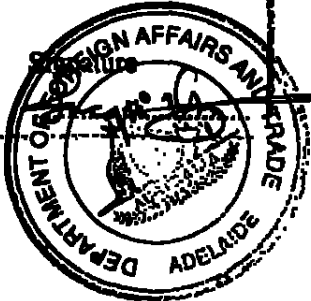
CRAIG LAURENCE VINALL  
NOTARY PUBLIC



**APOSTILLE**  
(Convention de La Haye du 5 octobre 1961)

1. Country: Australia  
Title of the document:  
2. Executed by: CRAIG L. VINALL  
3. Capacity: NOTARY PUBLIC  
4. Name of the person: OF CRAIG LAURENCE VINALL

Certified  
5. at ADELAIDE 6. the 4 DECEMBER 2003  
7. by JACQUI GROGAN  
8. No. A5687  
9. Seal/Stamp: 10. Signature



TRADUCCIÓN OFICIAL No. 03/343 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 por el Ministerio del Interior y de Justicia, por resolución número 718 de 2003 y autorizado por el Ministerio de relaciones Exteriores de Colombia.

(Se traduce un Documento de Cesión a favor de Rib Loc Australia Pty Ltd. y Apostilla No. A5687, escritos en inglés.)

## COLOMBIA

### CESIÓN

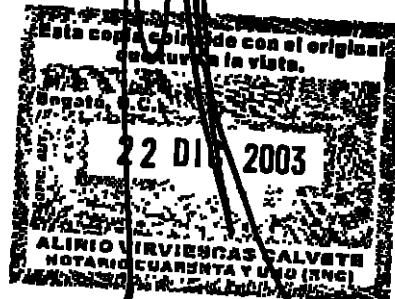
El suscrito, (en adelante el CEDENTE), Ian Roger Bateman, con domicilio en 6 Charlson Rise, Happy Valley, 5159 Australia del Sur, Australia, por el presente declara que cede todos y cada uno de los derechos y privilegios que le correspondan o que le puedan corresponder sobre la siguiente invención, **MÁQUINA PARA ENROLLAR TUBERÍA DE PEQUEÑO DIÁMETRO *IN SITU*** en Colombia a

Rib Loc Australia Pty Ltd con domicilio en 587 Grand Junction Road, Gepps Cross, 5094, Australia del Sur, Australia, (en adelante el CESIONARIO) quien acepta la cesión que se hace en el presente y autoriza a DILIA MARÍA RODRIGUEZ D'ALEMÁN, tp. 20824 y a CLAUDIA LUCÍA CARO RAMIREZ, tp. 36448, con domicilio en Santafé de Bogotá, Colombia, para que actuando en su orden, en nombre del (de los) otorgante(s) tramiten hasta su terminación el registro de la presente cesión.

Los Cedentes y el Cesionario firman este documento como prueba de aceptación de la cesión.

Dada y firmada en Adelaide, SA, a los 25 días del mes de Noviembre, 2003

(Firmado) Ian Roger Bateman (Cedente)



En nombre de Rib Loc Australia Pty Ltd

Nombre Completo: Ian Roger Bateman

Firma: (Firmado)

NOTA: Este documento debe ser otorgado ante Notario Público y legalizado por el Cónsul Colombia, en la cual el Señor Cónsul deberá dejar constancia de que las compañías actualmente existen legalmente y cumplen con su objeto social, que quien firma está autorizado para hacerlo y que tuvo a la vista los documentos que lo prueban.

Por el presente certifico que Rib Loc Australia Pty Ltd de 587 Grand Junction Road, Gepps Cross, 5094, Australia del Sur, Australia, es una sociedad debidamente constituida bajo las leyes de Australia y que Ian Roger Bateman es el representante legal de dicha sociedad y está autorizado para firmar ciertos documentos referentes a los asuntos de propiedad industrial, en nombre de la sociedad.

(Firmado) CRAIG LAURENCE VINALL, NOTARIO PÚBLICO

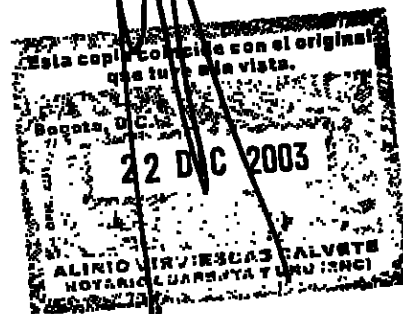
(Sello Notarial a Tinta)

APOSTILLA

(Convención de la Haya de Octubre 5 de 1961)

1. País: Australia  
Este documento público
2. Ha sido firmado por CRAIG LAURENCE VINALL

TRADUCCION OFICIAL N° 03/343  
JUAN PABLO PIEDRAHITA AGUILERA  
TRADUCTOR E INTERPRETE OFICIAL  
RES. 718 DE MAYO 2003  
DEL MIN. INTERIOR Y DE JUSTICIA



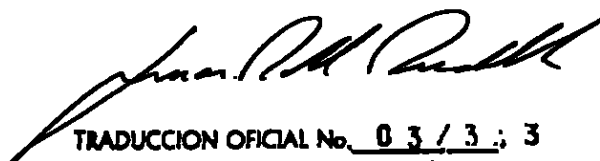
3. Obrando en calidad de Notario Público
4. Lleva el sello/estampilla de CRAIG LAURENCE VINALL

**CERTIFICADO**

5. En ADELAIDE
6. Hoy 4 de Diciembre, 2003
7. Por JACQUI CROGAN
8. Número A5687
9. Sello (Sello de Oblea: Departamento de Relaciones Exteriores))
10. Firma (Firmado) (Sello Redondo a Tinta)

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 20, 2003.

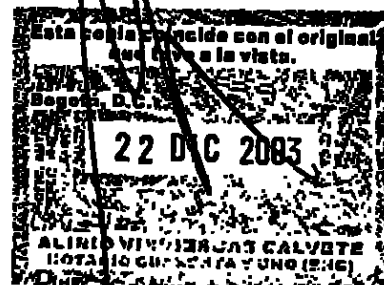


TRADUCCION OFICIAL No. 03 / 3 : 3

JUAN PABLO PIEDRAHITA AGUILERA

TRADUCTOR E INTERPRETE OFICIAL

L. 718 DE MAYO 2003  
DEL MIN. INTERIOR Y DE JUSTICIA



MINISTERIO DE RELACIONES  
EXTERIORES

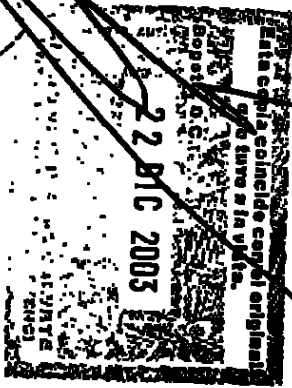
*firmado*  
08480

CUYA FIRMA APARECE EN EL  
DOCUMENTO DESEMPLEADO  
LAS FUNCIONES DE

NO SE Asume  
RESPONSABILIDAD DEL JERO

2003 DEC 22 P 8 03

JEFE DE LEGALIZACIONES  
SANTAFE DE BOGOTA D.C.





Clarke, Modet & Co

## COLOMBIA

Carrera 11 n° 93-43, Of. 404 Santafé de Bogotá Colombia Tel: (57 1) 6350813-Fax: (57 1) 6350824-E-mail: clarkemodet@clarkemodet.com.co

### PODER

Yo (nosotros), abajo firmante(s)

en mi (nuestro) carácter de representante(s) legales de

una sociedad organizada y existente de acuerdo con las leyes de

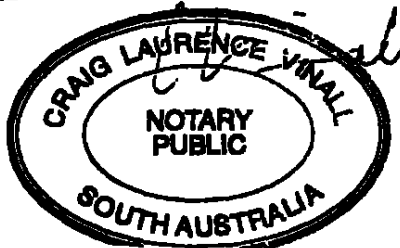
y en actual cumplimiento de su objeto social, con domicilio en

por el presente instrumento confiero (conferimos) poder especial a favor de DILIA MARIA RODRIGUEZ D'ALEMAN, con Cédula de Ciudadanía No. 41.654.882 de Bogotá, y tp. 20824 y CLAUDIA LUCIA CARO RAMIREZ, con Cédula de Ciudadanía No. 40.017.374 de Tunja, y tp. 36448, con domicilio en Santa Fé de Bogotá, Colombia, para que actuando en su orden en nombre del (de la) otorgante le (la) representen ante cualquier entidad, autoridad y/o persona, especialmente ante las del orden Administrativo, Contencioso Administrativo, Judicial, Tribunales de Arbitramento y/o cualquier otro en lo referente a los siguientes asuntos:

- 1) Solicitar, tramitar, obtener y/o registrar cualquiera de las modalidades de Propiedad Industrial, tales como: patentes de invención, modelos de utilidad; diseños industriales, variedades vegetales; marcas, lemas, nombres y enseñas comerciales y denominaciones de origen; así como sus renovaciones, prórrogas, transferencias, cambios de nombre y/o domicilio, contratos y licencias.
- 2) Solicitar, tramitar, obtener y/o registrar derechos de autor, en cualquiera de sus presentaciones así como la protección de secretos industriales y know-how.
- 3) Solicitar, tramitar, obtener y/o registrar registros sanitarios, permisos y/o licencias de funcionamiento; así como sus renovaciones o prórrogas, transferencias, cambios de nombre y/o domicilio, contratos y licencias.
- 4) Ejercer acciones de oposición, observación, reclamos, reconsideración, reposición, apelación, cancelación administrativa o judicial, nulidad, protección al consumidor, concesión de licencias, protección de secretos industriales y demás acciones y recursos relacionados con derechos derivados de los asuntos arriba indicados y en contra de la competencia desleal, acciones derivadas de la obtención o explotación de licencias, acciones de indemnización de perjuicios. También podrá(n) intervenir en juicios civiles, comerciales, penales, contencioso-administrativos, tutela y de policía; en acciones o juicios promovidos por el (la) mandante o en contra el (ella).
- 5) Registrar nombres de dominio ante la entidad competente.
- 6) En el ejercicio de este mandato los mandatarios arriba mencionados quedan facultados para: conciliar, cancelar, transigir, comprometer en árbitros, desistir, recibir y tomar posesión de la cosa objeto de litigio y renunciar o desistir a derechos concedidos o en curso de concesión, admitir los hechos del proceso.
- 7) Ratificar o no la agencia oficiosa.
- 8) Así mismo faculto (facultamos) a los mencionados apoderados para recibir notificaciones y designar apoderados judiciales o extrajudiciales, sustituir el presente poder y revocar las sustituciones que hicieren.

Dado y firmado en

a los días de



### POWER OF ATTORNEY

We, the undersigned, RIB LOC AUSTRALIA PTY LTD

an organization existing under the laws of AUSTRALIA

and in present execution of its business activity, domiciled at 587 Grand Junction Road, Gepps Cross, South Australia, 5094, Australia

do hereby grant POWER OF ATTORNEY to DILIA MARIA RODRIGUEZ D'ALEMAN, identification card No. 41.654.882 of Bogotá, and tp. 20824 and CLAUDIA LUCIA CARO RAMIREZ, tp. 36448, identification card No. 40.017.374 of Tunja, residing in Santa Fé de Bogotá, Colombia, to act in the order of their appointment in behalf of grantor before any entity, authority and/or natural or juridical person, specially before those Administrative, Administrative-Contentious, Judicial, arbitration courts, and/or any other, in all matters concerning the following:

- 1) To apply, process, obtain and/or register any of the modalities of Industrial Property, such as: Patents of Invention, Utility Models; Designs, plant varieties; Marks, Slogans, Trade Names and emblems and appellations of Origin; as well as their renewals, extensions, assignments, changes of name and/or domicile, agreements and licenses.
- 2) To apply, process, obtain and/or register copyrights of any kind as well as protection of industrial secrets or know-how.
- 3) To apply, process, obtain and/or register sanitary registrations, operating authorizations and/or licenses; as well as their renewals or extensions, assignments, changes of name and/or domicile, agreements and licenses.
- 4) To bring actions of opposition, observations, claims, reconsideration, appeal or legal remedies, cancellations, nullity, protection to the consumer, granting of licenses, protection of trade secrets and other actions related with rights derived from the above-mentioned matters and against the unfair competition, actions resulting from the obtaining or exploitation of licenses, recovering damages actions. They can also intervene or participate in Civil, Commercial, Criminal or Contentious-Administrative Trials; the actions for writ mandamus, police actions; in actions, lawsuits or litigations instituted by the grantor or against him.
- 5) To register domain names before the competent entity.
- 6) To the effect of this mandate the above-named proxy are empowered to: conciliate, cancel, settle, submit to arbitration, withdraw and to receive and take possession of the litigation related object and waive or renounce the rights granted or in process of granting, admit the facts of the case.
- 7) To ratify or not the officious agency.
- 8) I (we) hereby appoint the afore mentioned attorneys with powers to receive notifications and to designate judicial and extrajudicial attorneys, substitute this Power of Attorney and to revoke such substitutions.

Granted and signed at (place) ADLELAIDE, SOUTH AUSTRALIA

on this 3 day of MAY 2002

By:

BARRY

For and on behalf of RIB LOC AUSTRALIA PTY LTD 2003

TRADUCCIÓN OFICIAL No. 027194  
JUAN PABLO PIEDRAHITA GUERRA  
TRADU TO: E INTERPRETE OFICIAL  
C IDONCIDAD 045  
UNIVERSIDAD NACIONAL DE COLOMBIA

AUTENTICADO NOTARIAL  
 Los otorgados en: El Salvador y Venezuela  
 de: días del mes de  
 el Notario que suscribe DA FE de que  
 1. Nombre y fecha al otorgado y  
 2. Conoce a lo legítimamente  
 3. El otorgado  
 4.

I, ~~John Morgan~~....., an officer of the Australian Department of Foreign Affairs and Trade, Australia, having been duly authorised by the Secretary of the Department, DO HEREBY CERTIFY that the signature/seal of.....~~CLAG~~.....~~VINAM~~..... appearing on the documents attached hereto is the true signature/seal of ~~CLAG~~.....~~VINAM~~..... In so certifying, neither I nor the Department endorse, nor make any statement as to the accuracy of, the contents of the document.

GIVEN under my Hand and the Seal of the Department of Foreign Affairs and Trade ...~~13th~~.....~~MAY~~.....~~2002~~.....

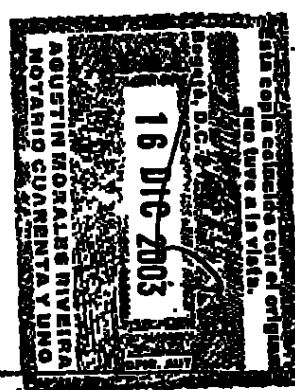
Seal

*Sign: [Signature]*

for the Secretary  
 Department of Foreign Affairs and Trade



02 / 194  
 TRADUCCION OFICIAL No  
 JUAN PABLO PIEDRAHITA AGUILERA  
 TRADUCTOR E INTERPRETE OFICIAL  
 C. IDONEIDAD 045  
 UNIVERSIDAD NACIONAL DE COLOMBIA



Notary Public  
South Australia  
CRAIG LAURENCE VINCENT  
16 DEC 2003

**CERTIFICADO NOTARIAL (Cuando el solicitante es SOCIEDAD)**  
Poderes otorgados en: El Salvador, Estados Unidos, Mexico y Venezuela)

A los \_\_\_\_\_ días del mes de \_\_\_\_\_ de \_\_\_\_\_  
el Notario que suscribe DA FE de que:

1. \_\_\_\_\_ (nombre de la persona que firma el poder) mayor de edad y domiciliado en \_\_\_\_\_ firmó de su puño y letra el documento que antecede.
2. Conoce al (a la) otorgante y que este (a) está legalmente capacitado para el otorgamiento.
3. El otorgante ha firmado el referido documento en su carácter de \_\_\_\_\_ de la persona jurídica \_\_\_\_\_
4. La citada persona jurídica con sede en \_\_\_\_\_ está legalmente constituida, que tiene actualmente existencia legal y que el acto para el cual se ha otorgado este poder está comprendido entre los que constituyen su objeto social.
5. El otorgante tiene efectivamente la representación que ostenta, que esta es legítima y que está facultado para otorgar este poder.
6. Las anteriores certificaciones de los puntos 3, 4 y 5, me constan porque he tenido a la vista los documentos auténticos.

Notario Público

NOTA: A continuación de lo anterior, el Consul de Colombia debe autenticar la firma del Notario Público.

**CERTIFICADO NOTARIAL (Cuando el solicitante es INDIVIDUO)**

A los \_\_\_\_\_ días del mes de \_\_\_\_\_ de \_\_\_\_\_  
el Notario que suscribe DA FE de que:

1. \_\_\_\_\_ (nombre de la persona que firma el poder) mayor de edad y domiciliado en \_\_\_\_\_ firmó en su presencia el documento que antecede, conoce al otorgante y que este está legalmente capacitado para el otorgamiento.

Notario Público

NOTA: A continuación de lo anterior, el Consul de Colombia debe autenticar la firma del Notario Público.

Para todos los demás países el Señor Consul de Colombia o ante quien se otorgue, debe expedir una certificación dejando constancia 1) de la existencia legal de la sociedad, 2) de que esta ejerce actualmente su objeto social, y 3) de que la persona o personas que otorgan el poder están facultadas para hacerlo, dejando constancia así mismo de que tuvo a la vista las pruebas que acrediten tales circunstancias.

**NOTARIAL CERTIFICATE ( When the applicant is a CORPORATION)**  
(Powers of attorney granted in: El Salvador, Mexico, U.S.A. and Venezuela)

This \_\_\_\_\_ day of \_\_\_\_\_  
the undersigned Notary CERTIFIES that:

1. Barry L Taylor (name of the person who signs the power of attorney) of legal age and domiciled in South Australia set his hand on the foregoing document.
2. The grantor is to him personally known and that he/she has legal capacity to execute the document.
3. The grantor has executed the foregoing document in his capacity of Chief Executive of the juridical person Rib Loc Australia Pty Ltd
4. The mentioned juridical person with place of business in South Australia is duly organized, has actual legal existence and that the purposes for which the power of attorney is granted are within the scope of its corporate purposes.
5. The grantor has in fact the referred quality and that his/her representation is legal and that he/she is empowered to grant this power of attorney.
6. I have based the above certifications 3, 4 and 5, on the authentic documents which for such purpose were exhibited to me.

Notary Public

NOTA: Then the Colombian Consul must legalize the signature of the Notary Public.

**NOTARIAL CERTIFICATE ( When the applicant is an INDIVIDUALS)**

On this \_\_\_\_\_ day of \_\_\_\_\_  
the undersigned Notary CERTIFIES that:

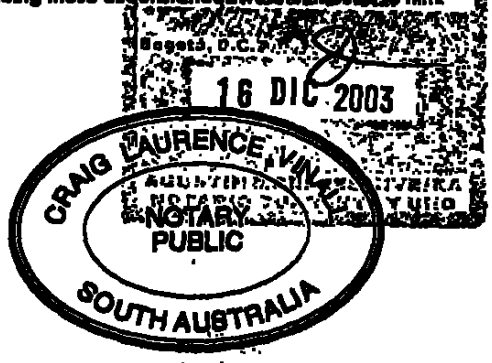
1. \_\_\_\_\_ (name of the person who signs the Power of Attorney) of legal age and domiciled at \_\_\_\_\_ signed in his presence the foregoing document, the grantor is to him personally known and that he/she has legal capacity to execute the document.

Notary Public

NOTA: Then the Colombian Consul must legalize the signature of the Notary Public.

For all other countries the Colombian Consul or before who it is granted must issue a certification stating 1) the legal existence of the corporation, 2) that the corporate purposes are actually being accomplished, 3) that the person or persons who grant this Power of Attorney are empowered to do it. The Consul must also examine and certify, evidencing those circumstances were exhibited to him.

02/194  
TRADUCCION OFICIAL No. \_\_\_\_\_  
JUAN PABLO PIEDRAHITA AGUILERA  
TRADUCTOR E INTERPRETE C. JAL  
C. JAL 045  
UNIVERSIDAD DE COLOMBIA



①

P 526

TRADUCCIÓN OFICIAL No. 01/194 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.

Se traducen un Poder y un Certificado Notarial de la Compañía RIB LOC AUSTRALIA PTY LTD., y Apostilla No. a2645 con fecha 17 de Junio, 2002. todo escrito en inglés.

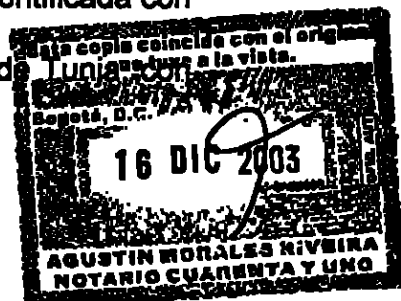
Clarke, Modet & Co.

COLOMBIA LTDA.

Carrera 11 nº 93-43, Of. 404, Santafé de Bogotá Colombia, Tel (57 1) 6350813  
Fax (57 1) 635 0824 Correo Electrónico: [clarkemodet@clarkemodet.com.co](mailto:clarkemodet@clarkemodet.com.co)

**PODER**

Nosotros, los suscritos, RIB LOC AUSTRALIA PTY LTD., sociedad existente bajo las leyes de AUSTRALIA, y en desarrollo en la actualidad de su actividad comercial, domiciliada en 587 Grand Junction Road, Gepps, Douth Australia, 5904, Australia, por el presente otorgamos Poder a DILIA MARÍA RODRÍGUEZ D'ALEMÁN, identificada con cédula de ciudadanía No. 41.654.882 de Bogotá y Tarjeta Profesional 20824 y CLAUDIA LUCIA CARO RAMIREZ, identificada con Tarjeta Profesional 36448 y cédula de ciudadanía No 40.017.374 de



11

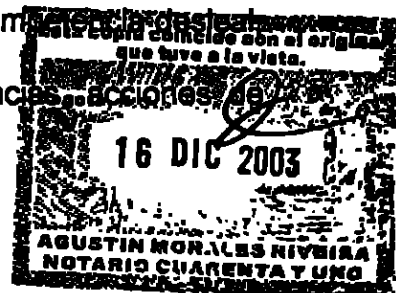
domicilio en Santafé de Bogotá, Colombia, para que actuando en su orden en nombre de la otorgante la representen ante cualquier entidad, autoridad y/o persona, especialmente ante las del orden Administrativo, Contencioso Administrativo, Judicial, Tribunales de Arbitramento y/o cualquier otro en lo referente a los siguientes asuntos:

1) Solicitar, tramitar, obtener y/o registrar cualesquiera de las modalidades de Propiedad Industrial, tales como: Patentes de Invención, Modelos de Utilidad; Diseños Industriales, variedades vegetales, Marcas, Lemas, Nombres y Enseñas Comerciales y Denominaciones de Origen; así como sus renovaciones, prórrogas, traspasos, cambios de nombre y/o domicilio, contratos y licencias.

2) Solicitar, tramitar, obtener, y/o registrar derechos de autor, en cualquiera de sus presentaciones así como la protección de secretos industriales y know-how.

3) Solicitar, tramitar, obtener y/o registrar registros sanitarios, permisos y/o licencias de funcionamiento; así como sus renovaciones o prórrogas, cesiones, traspasos, cambios de nombre y/o domicilio, contratos y licencias.

4) Ejercer acciones de oposición, observación, reclamos, reivindicaciones, reconsideración, reposición, apelación, cancelación administrativa o judicial, nulidad, protección al consumidor, concesión de licencias, protección de secretos industriales y demás acciones y recursos relacionados con derechos derivados de los asuntos arriba indicados y en contra de la competencia de las acciones derivadas de la obtención o explotación de licencias.



indemnización de perjuicios. También podrán intervenir en juicios civiles, comerciales, penales, contencioso-administrativos, tutelas y de policía; acciones o juicios promovidos por el mandante o contra él.

5) Registrar nombres de dominio ante la entidad competente.

6) En el ejercicio de este mandato los mandatarios arriba mencionados quedan facultados para: conciliar, cancelar, transigir, aceptar cláusulas compromisorias, desistir, recibir y tomar posesión de la cosa objeto de litigio y renunciar o desistir derechos concedidos o en curso de concesión, admitir los hechos del proceso.

7) Ratificar o no la agencia oficiosa.

8) Así mismo facultamos a los mencionados apoderados para recibir notificaciones y designar apoderados judiciales o extrajudiciales, sustituir el presente poder y revocar las sustituciones que hicieren.

Dado y firmado en Adelaide, South Australia, hoy día 3 de Mayo del 2002.

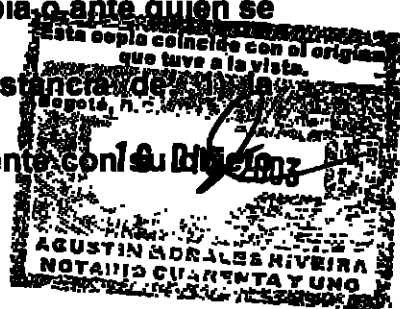
Por: (Firmado)Ilegible

Barry Taylor

Por y en nombre de RIB LOC AUSTRALIA PTY LTD

(Sello a tinta)

Para todos los demás países el Señor Cónsul de Colombia o ante quien se otorgue, debe expedir una certificación dejando constancia de 1) la existencia legal de la sociedad, 2) que cumple actualmente con la Ley 1612



TRADUCCION GUBERNATIVA  
JUAN PABLO PIEDRAHITA AGUILERA  
TRADUCTOR E INTERPRETE OFICIAL  
C.C. 20.045  
UNIVERSIDAD NACIONAL DE COLOMBIA

13

social, y 3) que la persona o personas que otorgan este poder están facultadas para hacerlo. El Cónsul también certificará que los tuvo a la vista los documentos que prueban y acreditan tales circunstancias.

Yo, JACQUI GROGAN, funcionario del Departamento de Relaciones Exteriores y de Comercio de Australia., estando debidamente autorizado por el Secretario de Departamento, POR EL PRESENTE CERTIFICO que las firma/sello de CRAIG L. VINALL que aparece en el documento adjunto, es la firma auténtica/sello. Certificando lo anterior, ni yo ni el Departamento avalan ni hacen afirmación alguna en relación con el contenido de este documento.

DADO bajo mi firma y el Sello del Departamento de Relaciones Exteriores y Comercio el 13 de Mayo, 2002.

Sello

(Sello Redondo a Tinta)

(Firmado) Jacqui Grogan

por el Secretario del Departamento de Relaciones Exteriores y Comercio

Sello Pre-impreso



14

Centro de la Mancomunidad

55 Currie Street

Adelaide 5000

Teléfono: 8403 4899

Facsimil 8403 4869

**APOSTILLA**

(Convención de la Haya de Octubre 5 de 1961)

**País: Australia**

Este documento público ha sido firmado por **Craig Laurence Vinall**, obrando en calidad de **Notario Público** y lleva el sello/estampilla de **Craig L. Vinall, Notario Público**

**CERTIFICADO**

En Adelaide., hoy 17 de Junio de Dos Mil Dos por **Jacqui Grogan**

No. A2645

Sello/Estampilla (Sello Redondo a Tinta del Departamento de Relaciones Exteriores y Comercio, Melbourne)

Sello Redondo de Oblea con Cinta

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, Julio 15 de 2002.

15 DIC 2003

TRADUCCION OFICIAL No.  
**JUAN PABLO PIEDRAHITA AGUILERA**  
TRADUCTOR E INTERPRETE OFICIAL  
C. IDONEIDAD 045  
UNIVERSIDAD NACIONAL DE COLOMBIA

JEFE DE SALUD  
SANTAFE DE BOGOTA D.C.  
2002 JUN 10 P 3 13  
RESUMEN DEL TEXTO  
NO SE ASUME

MINISTERIO DE RELACIONES  
EXTERIORES  
008547  
JUN 10 2002  
COPIA FIRMADA APARECE EN EL  
DOCUMENTO DESEMPLEA  
LAS FUENTES INDICADAS

Esta copia coincide con el original  
que tuvo a la vista.  
16 DIC 2003  
AGUSTIN NOVALES  
NOTARIO CHABON

P. 440

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FOREIGN  
AFFAIRS AND  
TRADE

South Australian Office

5th Floor  
Commonwealth Centre  
55 Currie Street  
Adelaide 5000  
Telephone: 8403 4899  
Facsimile: 8403 4869

**APOSTILLE**

*(Convention de La Haye du 5 Octobre 1961)*

**Country: AUSTRALIA**

*This public document has been signed by CRAIG LAURENCE VINALL acting in the capacity of NOTARY PUBLIC and bears the seal/stamp of CRAIG LAURENCE VINALL.*

**Certified**

*At ADELAIDE the Seventeenth day of June Two Thousand and Two by JACQUI GROGAN.*

**No. A2645**

**Seal/Stamp**

**Signature** .....



DIC 2003

TRADUCIDO OFICIAL No.  
JUAN PABLO PIEDRAHITA AGUILERA  
TRADUCTO E INTERPRETE OFICIAL  
C. ID. 045  
UNIVERSIDAD NACIONAL DE COLOMBIA

# PATENT COOPERATION TREATY

WO 02/101278  
PCT/AU02/000736

From the INTERNATIONAL BUREAU

## PCT

NOTICE INFORMING THE APPLICANT OF THE  
COMMUNICATION OF THE INTERNATIONAL  
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:

MADDERNS  
Level 1  
64 Hindmarsh Square  
Adelaide, South Australia 5000  
AUSTRALIE

|                                                                |                                                                      |                                                          |
|----------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------|
| Date of mailing(day/month/year)<br>19 December 2002 (19.12.02) |                                                                      |                                                          |
| Applicant's or agent's file reference<br>20414PCT              |                                                                      | IMPORTANT NOTICE                                         |
| International application No.<br>PCT/AU02/000736               | International filing date(day/month/year)<br>07 June 2002 (07.06.02) | Priority date(day/month/year)<br>08 June 2001 (08.06.01) |
| Applicant<br>RIB LOC AUSTRALIA PTY LTD, et al                  |                                                                      |                                                          |

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this notice:

KP, KR, US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OA, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this notice is a copy of the international application as published by the International Bureau on 19 December 2002 (19.12.02) under No. WO 02/101278.

4. **TIME LIMITS** for filing a demand for international preliminary examination and for entry into the national phase

The applicable time limit for entering the national phase will, subject to what is said in the following paragraph, be 30 MONTHS from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of 19 months from the priority date, but also in respect of any designated Office, in the absence of filing of such demand, where Article 22(1) as modified with effect from 1 April 2002 applies in respect of that designated Office. For further details, see *PCT Gazette* No. 44/2001 of 1 November 2001, pages 19926, 19932 and 19934, as well as the *PCT Newsletter*, October and November 2001 and February 2002 issues.

In practice, time limits other than the 30-month time limit will continue to apply, for various periods of time, in respect of certain designated or elected Offices. For regular updates on the applicable time limits (20, 21, 30 or 31 months, or other time limit), Office by Office, refer to the *PCT Gazette*, the *PCT Newsletter* and the *PCT Applicant's Guide*, Volume II, National Chapters, all available from WIPO's Internet site, at <http://www.wipo.int/pct/en/index.html>.

For filing a demand for international preliminary examination, see the *PCT Applicant's Guide*, Volume I/A, Chapter IX. Only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

It is the applicant's sole responsibility to monitor all these time limits.

|                                                                                               |                                        |
|-----------------------------------------------------------------------------------------------|----------------------------------------|
| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland | Authorized officer<br><br>Judith Zahra |
| Facsimile No.(41-22) 740.14.35                                                                | Telephone No.(41-22) 338.91.11         |

# PCT

## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference  
(if desired) (12 characters maximum) 20414PCT

Box No. I TITLE OF INVENTION  
SMALL DIAMETER IN-SITU PIPE WINDING MACHINE

Box No. II APPLICANT ☐ This person is also inventor

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence (if no State of residence is indicated below.)

RIB LOC AUSTRALIA PTY LTD  
587 GRAND JUNCTION ROAD  
GEPPS CROSS, 5084  
SOUTH AUSTRALIA  
AUSTRALIA

Telephone No.

Facsimile No.

Teleprinter No.

Applicant's registration No. with the Office

State (that is, country) of nationality:  
AUSTRALIA

State (that is, country) of residence:  
AUSTRALIA

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence (if no State of residence is indicated below.)

BATEMAN, Ian Roger  
6 CHARLSON RISE  
HAPPY VALLEY, 5159  
SOUTH AUSTRALIA  
AUSTRALIA

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:  
AUSTRALIA

State (that is, country) of residence:  
AUSTRALIA

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent

☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

MADDERNS  
LEVEL 1, 64 HINDMARSH SQUARE  
ADELAIDE, 5000  
SOUTH AUSTRALIA  
AUSTRALIA

Telephone No.  
08 8223 6666

Facsimile No.  
08 8223 2588

Teleprinter No.

Agent's registration No. with the Office

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. V DESIGNATION OF STATES

Mark the applicable check-boxes below; at least one must be marked.

The following designations are hereby made under Rule 4.9(a):

Regional Patent

- ☐ **AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZM Zambia, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT (if other kind of protection or treatment desired, specify on dotted line) .....
- ☐ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☐ **EP** European Patent: AT Austria, BE Belgium, CH & LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, TR Turkey, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☐ **OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line) .....

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- |                                                                |                                                                       |                                                         |
|----------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> AE United Arab Emirates               | <input type="checkbox"/> GM Gambia                                    | <input type="checkbox"/> NZ New Zealand                 |
| <input type="checkbox"/> AG Antigua and Barbuda                | <input type="checkbox"/> HR Croatia                                   | <input type="checkbox"/> OM Oman                        |
| <input type="checkbox"/> AL Albania                            | <input type="checkbox"/> HU Hungary                                   | <input type="checkbox"/> PH Philippines                 |
| <input type="checkbox"/> AM Armenia                            | <input type="checkbox"/> ID Indonesia                                 | <input type="checkbox"/> PL Poland                      |
| <input type="checkbox"/> AT Austria                            | <input type="checkbox"/> IL Israel                                    | <input type="checkbox"/> PT Portugal                    |
| <input type="checkbox"/> AU Australia                          | <input type="checkbox"/> IN India                                     | <input type="checkbox"/> RO Romania                     |
| <input type="checkbox"/> AZ Azerbaijan                         | <input type="checkbox"/> IS Iceland                                   | <input type="checkbox"/> RU Russian Federation          |
| <input type="checkbox"/> BA Bosnia and Herzegovina             | <input type="checkbox"/> JP Japan                                     |                                                         |
| <input type="checkbox"/> BB Barbados                           | <input type="checkbox"/> KE Kenya                                     | <input type="checkbox"/> SD Sudan                       |
| <input type="checkbox"/> BG Bulgaria                           | <input type="checkbox"/> KG Kyrgyzstan                                | <input type="checkbox"/> SE Sweden                      |
| <input type="checkbox"/> BR Brazil                             | <input type="checkbox"/> KP Democratic People's Republic of Korea     | <input type="checkbox"/> SG Singapore                   |
| <input type="checkbox"/> BY Belarus                            | <input type="checkbox"/> KR Republic of Korea                         | <input type="checkbox"/> SI Slovenia                    |
| <input type="checkbox"/> BZ Belize                             | <input type="checkbox"/> KZ Kazakhstan                                | <input type="checkbox"/> SK Slovakia                    |
| <input type="checkbox"/> CA Canada                             | <input type="checkbox"/> LC Saint Lucia                               | <input type="checkbox"/> SL Sierra Leone                |
| <input type="checkbox"/> CH & LI Switzerland and Liechtenstein | <input type="checkbox"/> LK Sri Lanka                                 | <input type="checkbox"/> TJ Tajikistan                  |
| <input type="checkbox"/> CN China                              | <input type="checkbox"/> LR Liberia                                   | <input type="checkbox"/> TM Turkmenistan                |
| <input type="checkbox"/> CO Colombia                           | <input type="checkbox"/> LS Lesotho                                   | <input type="checkbox"/> TN Tunisia                     |
| <input type="checkbox"/> CR Costa Rica                         | <input type="checkbox"/> LT Lithuania                                 | <input type="checkbox"/> TR Turkey                      |
| <input type="checkbox"/> CU Cuba                               | <input type="checkbox"/> LU Luxembourg                                | <input type="checkbox"/> TT Trinidad and Tobago         |
| <input type="checkbox"/> CZ Czech Republic                     | <input type="checkbox"/> LV Latvia                                    |                                                         |
| <input type="checkbox"/> DE Germany                            | <input type="checkbox"/> MA Morocco                                   | <input type="checkbox"/> TZ United Republic of Tanzania |
| <input type="checkbox"/> DK Denmark                            | <input type="checkbox"/> MD Republic of Moldova                       | <input type="checkbox"/> UA Ukraine                     |
| <input type="checkbox"/> DM Dominica                           |                                                                       | <input type="checkbox"/> UG Uganda                      |
| <input type="checkbox"/> DZ Algeria                            | <input type="checkbox"/> MG Madagascar                                | <input type="checkbox"/> US United States of America    |
| <input type="checkbox"/> EC Ecuador                            | <input type="checkbox"/> MK The former Yugoslav Republic of Macedonia |                                                         |
| <input type="checkbox"/> EE Estonia                            | <input type="checkbox"/> MN Mongolia                                  | <input type="checkbox"/> UZ Uzbekistan                  |
| <input type="checkbox"/> ES Spain                              | <input type="checkbox"/> MW Malawi                                    | <input type="checkbox"/> VN Viet Nam                    |
| <input type="checkbox"/> FI Finland                            | <input type="checkbox"/> MX Mexico                                    | <input type="checkbox"/> YU Yugoslavia                  |
| <input type="checkbox"/> GB United Kingdom                     | <input type="checkbox"/> MZ Mozambique                                | <input type="checkbox"/> ZA South Africa                |
| <input type="checkbox"/> GD Grenada                            | <input type="checkbox"/> NO Norway                                    | <input type="checkbox"/> ZM Zambia                      |
| <input type="checkbox"/> GE Georgia                            |                                                                       | <input type="checkbox"/> ZW Zimbabwe                    |
| <input type="checkbox"/> GH Ghana                              |                                                                       |                                                         |

Check-boxes below reserved for designating States which have become party to the PCT after issuance of this sheet:

- |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|
| <input type="checkbox"/> ..... | <input type="checkbox"/> ..... | <input type="checkbox"/> ..... |
| <input type="checkbox"/> ..... | <input type="checkbox"/> ..... | <input type="checkbox"/> ..... |

**Precautionary Designation Statement:** In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

1919

**Box No. VI PRIORITY CLAIM**

The priority of the following earlier application(s) is hereby claimed:

| Filing date<br>of earlier application<br>(day/month/year) | Number<br>of earlier application | Where earlier application is:    |                                           |                                                |
|-----------------------------------------------------------|----------------------------------|----------------------------------|-------------------------------------------|------------------------------------------------|
|                                                           |                                  | national application:<br>country | regional application:*<br>regional Office | international application:<br>receiving Office |
| item (1)<br>8/8/2001                                      | PR 5572                          | AUSTRALIA                        |                                           |                                                |
| item (2)                                                  |                                  |                                  |                                           |                                                |
| item (3)                                                  |                                  |                                  |                                           |                                                |
| item (4)                                                  |                                  |                                  |                                           |                                                |
| item (5)                                                  |                                  |                                  |                                           |                                                |

☐ Further priority claims are indicated in the Supplemental Box.

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office) identified above as:

☐ all items ☒ item (1) ☐ item (2) ☐ item (3) ☐ item (4) ☐ item (5) ☐ other, see Supplemental Box

\* Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)): . . . .

**Box No. VII INTERNATIONAL SEARCHING AUTHORITY**

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA / .....

Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year)                      Number                      Country (or regional Office)

**Box No. VIII DECLARATIONS**

The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration):

Number of  
declarations

- |                                             |                                                                                                                                      |   |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---|
| <input type="checkbox"/> Box No. VIII (i)   | Declaration as to the identity of the inventor                                                                                       | : |
| <input type="checkbox"/> Box No. VIII (ii)  | Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent             | : |
| <input type="checkbox"/> Box No. VIII (iii) | Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application | : |
| <input type="checkbox"/> Box No. VIII (iv)  | Declaration of inventorship (only for the purposes of the designation of the United States of America)                               | : |
| <input type="checkbox"/> Box No. VIII (v)   | Declaration as to non-prejudicial disclosures or exceptions to lack of novelty                                                       | : |

28 20

Box No. IX CHECK LIST; LANGUAGE F FILING

This international application contains:

- (a) the following number of sheets in paper form:
- |                                                                                                                                                           |   |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---|----|
| request (including declaration sheets)                                                                                                                    | : | 4  |
| description (excluding sequence listing part)                                                                                                             | : | 8  |
| claims                                                                                                                                                    | : | 4  |
| abstract                                                                                                                                                  | : | 1  |
| drawings                                                                                                                                                  | : | 8  |
| Sub-total number of sheets                                                                                                                                | : | 25 |
| sequence listing part of description (actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (b) below) | : |    |
| Total number of sheets                                                                                                                                    | : | 25 |

- (b) sequence listing part of description filed in computer readable form
- (i) ☐ only (under Section 801(a)(i))
- (ii) ☐ in addition to being filed in paper form (under Section 801(a)(ii))
- Type and number of carriers (diskette, CD-ROM, CD-R or other) on which the sequence listing part is contained (additional copies to be indicated under item 9(ii), in right column):

This international application is accompanied by the following item(s) (mark the applicable check-boxes below and indicate in right column the number of each item):

- |                                                                                                                                                                                                                   |   |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet                                                                                                                                                      | : | 1 |
| 2. <input type="checkbox"/> original separate power of attorney                                                                                                                                                   | : |   |
| 3. <input type="checkbox"/> original general power of attorney                                                                                                                                                    | : |   |
| 4. <input type="checkbox"/> copy of general power of attorney; reference number, if any: .....                                                                                                                    | : |   |
| 5. <input type="checkbox"/> statement explaining lack of signature                                                                                                                                                | : |   |
| 6. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): .....                                                                                                                       | : |   |
| 7. <input type="checkbox"/> translation of international application into (language): .....                                                                                                                       | : |   |
| 8. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material                                                                                                  | : |   |
| 9. <input type="checkbox"/> sequence listing in computer readable form (indicate also type and number of carriers (diskette, CD-ROM, CD-R or other))                                                              | : |   |
| (i) <input type="checkbox"/> copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application)                                                     | : |   |
| (ii) <input type="checkbox"/> (only where check-box (b)(i) or (b)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter | : |   |
| (iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the sequence listing part mentioned in left column                                                  | : |   |
| 10. <input type="checkbox"/> other (specify): .....                                                                                                                                                               | : |   |

Number of items

Figure of the drawings which should accompany the abstract: 4

Language of filing of the international application: ENGLISH

Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).



T A MELVILLE (MADDERNS)  
AGENT FOR THE APPLICANT

For receiving Office use only

|                                                                                                                                             |                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1. Date of actual receipt of the purported international application:                                                                       | 2. Drawings:<br><input type="checkbox"/> received:<br><br><input type="checkbox"/> not received: |
| 3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application: |                                                                                                  |
| 4. Date of timely receipt of the required corrections under PCT Article 11(2):                                                              |                                                                                                  |
| 5. International Searching Authority (if two or more are competent): ISA /                                                                  | 6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid          |

For International Bureau use only

Date of receipt of the record copy by the International Bureau:

# PATENT COOPERATION TREATY

17 JUN 2002 21

From the RECEIVING OFFICE

**PCT**

NOTIFICATION OF THE INTERNATIONAL  
APPLICATION NUMBER AND OF THE  
INTERNATIONAL FILING DATE

(PCT Rule 20.5(c))

To: Agent :

**MADDERNS**  
1st Floor Wolf Blass House  
64 Hindmarsh Square  
ADELAIDE SA 5000

Date of mailing 15 JUN 2002  
(day/month/year) (15/6/02)

Applicant's or agent's file reference  
20414PCT

## IMPORTANT NOTIFICATION

International application No.  
PCT/AU02/00736

International filing date (day/month/year)  
7 JUN 2002 (7/6/02)

Priority date (day/month/year)  
8 JUN 2001 (8/6/01)

Applicant

**Rib Loc Australia Pty. Ltd. (et al.)**

Title of the invention Small diameter in-situ pipe winding machine

1. The applicant is hereby notified that the international application has been accorded the international application number and the international filing date above.

2. The applicant is further notified that the record copy of the international application:

- ☒ was transmitted to the International Bureau on 15 JUN 2002 (15/6/02)
- ☐ has not yet been transmitted to the International Bureau for the reason indicated below and a copy of this notification has been sent to the International Bureau\*:
- ☐ because the necessary national security clearance has not yet been obtained.
- ☐ because (reason to be specified)

\* The International Bureau monitors the transmittal of the record copy by the receiving Office and will notify the applicant (with Form PCT/IB/301) of its receipt. Should the record copy not have been received by the expiration of 14 months from the priority date, the International Bureau will notify the applicant (Rule 22.1(c)).

Name and mailing address of the receiving Office  
**AUSTRALIAN PATENT OFFICE**  
PO BOX 200, WODEN ACT 2606, AUSTRALIA  
E-mail: pct@ipaustralia.gov.au  
Facsimile No. 02 6285 3929

Authorized officer **KARYN DUNN**  
(02) 6283 2006  
Telephone No.

# PATENT COOPERATION TREATY

From the:  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

22

To:

MADDERNS  
1st Floor Wolf Blass House  
64 Hindmarsh Square  
ADELAIDE SA 5000

## PCT WRITTEN OPINION (PCT Rule 66)

Date of mailing  
(day/month/year) 07/01/03

Applicant's or agent's file reference  
20414PCT

REPLY DUE within TWO MONTHS  
from the above date of mailing

International Application No.  
PCT/AU02/00736

International Filing Date (day/month/year)  
7 June 2002

Priority Date (day/month/year)  
8 June 2001

International Patent Classification (IPC) or both national classification and IPC  
Int. Cl. <sup>7</sup> F16L 58/02, 58/16, 57/06, 55/162.

Applicant

RIB LOC AUSTRALIA PTY. LTD. et al

1. This written opinion is the **First** drawn by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

3. The **FINAL DATE** by which the international preliminary examination report must be established according to Rule 69.2 is:  
8 October 2003

4. The applicant is hereby invited to reply to this opinion.

- When?** See the Reply Due date indicated above. However, the Australian Patent Office will not establish the Report before the earlier of (i) a response being filed, or (ii) one month before the Final Date by which the international preliminary examination report must be established. The Report will take into account any response (including amendments) filed before the Report is established. If no response is filed by 1 month before the Final Date, the international preliminary examination report will be established on the basis of this opinion. Applicants wishing to have the benefit of a further opinion (if needed) before the report is established should ensure that a response is filed at least 3 months before the Final Date by which the international preliminary examination report must be established.
- How?** By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.
- Also** For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6.

Name and mailing address of the IPEA/AU  
AUSTRALIAN PATENT OFFICE  
PO BOX 200, WODEN ACT 2606, AUSTRALIA  
E-mail address: pct@ipaaustralia.gov.au  
Facsimile No. (02) 6285 3929

Authorized Officer  
  
R. WEBER  
Telephone No. (02) 6283 2546

I. Basis of the opinion

1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the claims, pages , as originally filed,  
pages , as amended under Article 19,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"

**IV. Lack of unity of invention**

1. In response to the invitation (Form PCT/IPEA/405) to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. This Authority found that the requirement of unity of invention is not complied with for the following reasons and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees:

Claim 1 is directed to an elongate machine for winding a helically wound pipe including an elongate strip guide with strip guide rollers and drive means. These features as claimed being considered to be the first special technical feature whereas claim 8 defines an elongate machine for winding a helically wound pipe having the basic components as defined in claim 1 and also known from WO 00/17564 and further including the second special technical feature of having the hinge means between the intermediate and trailing portions.

3. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos.

**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

|                               |                |     |
|-------------------------------|----------------|-----|
| Novelty (N)                   | Claims 1 to 15 | YES |
|                               | Claims         | NO  |
| Inventive step (IS)           | Claims 1 to 15 | YES |
|                               | Claims         | NO  |
| Industrial applicability (IA) | Claims 1 to 15 | YES |
|                               | Claims         | NO  |

**Citations and explanations**

**NOVELTY (N) and INVENTIVE STEP (IS) CLAIMS 1 to 15.**

The claims as presently defined relate to :-

Claim 1 an elongate machine for winding helical pipe including an elongate strip guide with strip guide rollers and associated drive means for the rollers.

Claim 8 an elongate machine for winding helical pipe and having a hinge between the intermediate and trailing portions so it may travel along a pipe then be pulled up a manhole.

No individual citation or obvious combination show either of these arrangements. The closest art may be seen in the following documents:-

WO 00/17564 A, WO 98/34742 A, WO 90/05873 A, WO 89/11060 A, WO 89/06738 A, WO 87/05677 A, AU 81719/91 A, US 4029932 A, US 5799701 A, FR 2686678 A.

**INDUSTRIAL APPLICABILITY (IA) CLAIMS 1 to 15.**

All claims are considered to be industrially applicable.

## PATENT COOPERATION TREATY

From the:  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

**PCT**  
NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY EXAMINATION  
REPORT

(PCT Rule 71.1)

To:

Madderns  
1st Floor Wolf Blass House  
64 Hindmarsh Square  
ADELAIDE SA 5000

**MADDERNS**

**25 SEP 2003**

Date of mailing  
day/month/year

**22 SEP 2003**

Applicant's or agent's file reference  
**20414PCT**

**IMPORTANT NOTIFICATION**

International Application No.  
**PCT/AU02/00736**

International Filing Date  
**7 June 2002**

Priority Date  
**8 June 2001**

Applicant

**RIB LOC AUSTRALIA PTY. LTD. et al**

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translations to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide

Name and mailing address of the IPEA/AU

AUSTRALIAN PATENT OFFICE  
PO BOX 200, WODEN ACT 2606, AUSTRALIA  
E-mail address: [pct@ipaaustralia.gov.au](mailto:pct@ipaaustralia.gov.au)  
Facsimile No. (02) 6285 3929

Authorized officer

**R. WEBER**

Telephone No. (02) 6283 2546

2727

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)

|                                                                                                                                                |                                                                     |                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Applicant's or agent's file reference<br><b>20414PCT</b>                                                                                       | <b>FOR FURTHER ACTION</b>                                           | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416). |
| International Application No.<br><b>PCT/AU02/00736</b>                                                                                         | International Filing Date<br>(day/month/year)<br><b>7 June 2002</b> | Priority Date (day/month/year)<br><b>8 June 2001</b>                                                 |
| International Patent Classification (IPC) or national classification and IPC<br><b>Int. Cl. <sup>7</sup> F16L 58/02, 58/16, 57/06, 55/162.</b> |                                                                     |                                                                                                      |
| Applicant<br><b>RIB LOC AUSTRALIA PTY. LTD. et al</b>                                                                                          |                                                                     |                                                                                                      |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <b>4</b> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <b>  </b> sheet(s).</p>                                                                                                                                                  |
| <p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input checked="" type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p> |

|                                                                                                                                                                                                 |                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Date of submission of the demand<br><b>2 December 2002</b>                                                                                                                                      | Date of completion of the report<br><b>17 September 2003</b>              |
| Name and mailing address of the IPEA/AU<br><b>AUSTRALIAN PATENT OFFICE<br/>PO BOX 200, WODEN ACT 2606, AUSTRALIA<br/>E-mail address: pct@ipaustalia.gov.au<br/>Facsimile No. (02) 6285 3929</b> | Authorized Officer<br><br><b>R. WEBER</b><br>Telephone No. (02) 6283 2546 |

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU02/00736

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the claims, pages , as originally filed,  
pages , as amended (together with any statement) under Article 19,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , received on with the letter of

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

**IV. Lack of unity of invention****1. In response to the invitation to restrict or pay additional fees the applicant has:**

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

**2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.****3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is**

- ☐ complied with.
- ☒ not complied with for the following reasons:

Claim 1 is directed to an elongate machine for winding a helically wound pipe including an elongate strip guide with strip guide rollers and drive means. These features as claimed being considered to be the first special technical feature whereas claim 8 defines an elongate machine for winding a helically wound pipe having the basic components as defined in claim 1 and also known from WO 00/17564 and further including the second special technical feature of having the hinge means between the intermediate and trailing portions.

**4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:**

- ☒ all parts.
- ☐ the parts relating to claims Nos.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement**

**1. Statement**

|                               |                 |     |
|-------------------------------|-----------------|-----|
| Novelty (N)                   | Claims 1 to 15. | YES |
|                               | Claims          | NO  |
| Inventive step (IS)           | Claims 1 to 15. | YES |
|                               | Claims          | NO  |
| Industrial applicability (IA) | Claims 1 to 15. | YES |
|                               | Claims          | NO  |

**2. Citations and explanations (Rule 70.7)**

**NOVELTY (N) and INVENTIVE STEP (IS) CLAIMS 1 to 15.**

The claims as presently defined relate to :-

Claim 1 an elongate machine for winding helical pipe including an elongate strip guide with strip guide rollers and associated drive means for the rollers.

Claim 8 an elongate machine for winding helical pipe and having a hinge between the intermediate and trailing portions so it may travel along a pipe then be pulled up a manhole.

No individual citation or obvious combination show either of these arrangements. The closest art may be seen in the following documents:-

WO 00/17564 A, WO 98/34742 A, WO 90/05873 A, WO 89/11060 A, WO 89/06738 A, WO 87/05677 A, AU 81719/91 A, US 4029932 A, US 5799701 A, FR 2686678 A.

**INDUSTRIAL APPLICABILITY (IA) CLAIMS 1 to 15.**

All claims are considered to be industrially applicable.

(19) World Intellectual Property Organization  
International Bureau



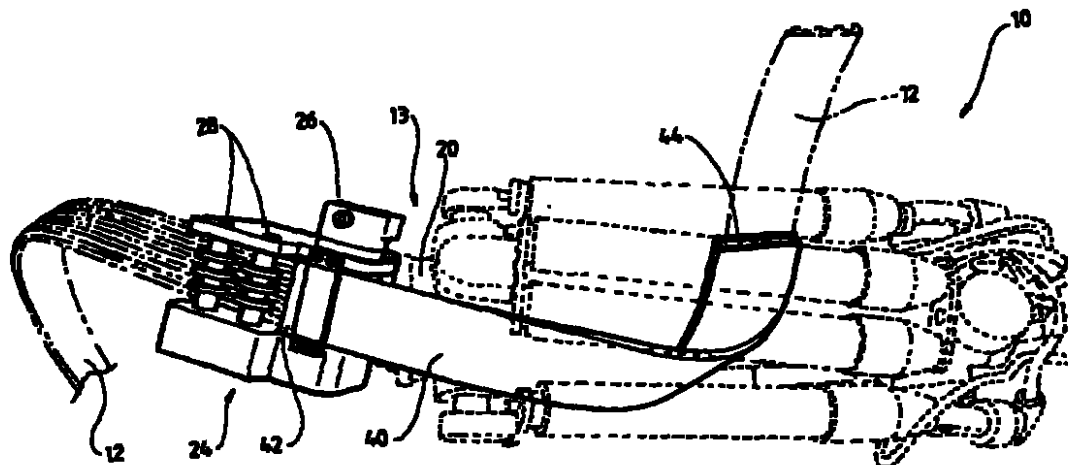
(43) International Publication Date  
19 December 2002 (19.12.2002)

PCT

(10) International Publication Number  
WO 02/101278 A1

- (51) International Patent Classification<sup>7</sup>: F16L 58/02, 58/16, 57/06, 55/162
- (21) International Application Number: PCT/AU02/00736
- (22) International Filing Date: 7 June 2002 (07.06.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
PR 5572 8 June 2001 (08.06.2001) AU
- (71) Applicant (for all designated States except US): RIB LOC AUSTRALIA PTY LTD [AU/AU]; 587 Grand Junction Road, Gepps Cross, South Australia 5094 (AU).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): BATEMAN, Ian, Roger [AU/AU]; 6 Charlson Rise, Happy Valley, South Australia 5159 (AU).
- (74) Agent: MADDERS; Level 1, 64 Hindmarsh Square, Adelaide, South Australia 5000 (AU).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SMALL DIAMETER IN-SITU PIPE WINDING MACHINE



(57) Abstract: An elongate machine (10) for winding a helically wound pipe from a strip (12). The machine comprises: a frame (20) having at least three circumferentially spaced guide rollers adapted to bear against the inner periphery of the pipe being wound; an elongate strip guide (40) for guiding the strip axially through the machine from an entrance position adjacent the trailing end of the machine to an exit position (44) adjacent one of the three guide rollers; a strip drive pinch roller assembly (24), mounted to the trailing end of the frame adjacent the entrance position, for driving the strip (12) through the strip guide (40) in compression to around the outside of the rollers so as to follow a helical path and cause adjacent edge portions of adjacent convolutions of the strip (12) to interlock; and a motor (26) for driving the strip drive roller means (24), whereby, in use, the strip (12) is continuously driven by the strip drive roller means (24) through the strip guide (40) to a position adjacent the last convolution wound to thereby form a helical pipe.

WO 02/101278 A1

It is an object of the invention to overcome at least some of the above problems.

## SUMMARY OF THE INVENTION

According to a first aspect of the invention there is provided an elongate machine for winding a helically wound pipe from a strip having complementary connecting formations extending along opposite edge portions thereof and which are adapted to interlock when the strip is helically wound, the machine comprising:

a frame having at least three circumferentially spaced guide rollers adapted to bear against the inner periphery of the pipe being wound, the rollers forming a guide to enable the strip to follow a helical path along which the strip is directed when the machine is in use, the frame having a leading end and a trailing end;

an elongate strip guide for guiding the strip axially through the machine from an entrance position adjacent the trailing end of the machine to an exit position adjacent one of the at least three guide rollers and facing towards the helical path;

strip drive roller means, mounted to the trailing end of the frame adjacent the entrance position, for driving the strip through the strip guide in compression to around the outside of the rollers so as to follow the helical path and cause the adjacent edge portions of adjacent convolutions of the strip to interlock; and

drive means for driving the strip drive roller means,

whereby, in use, the strip is continuously driven by the strip drive roller means through the strip guide to a position adjacent the last convolution wound to thereby form a helical pipe.

Preferably the machine the strip guide comprises a continuous tube with a cross-section substantially rectangular in shape.

## SMALL DIAMETER IN-SITU PIPE WINDING MACHINE

### FIELD OF THE INVENTION

This invention relates to apparatus for winding pipes from an elongate strip. In particular, the invention relates to apparatus for winding small diameter helical pipes.

### BACKGROUND

It is now known to repair conduits such as sewer pipes by the insertion of a helically wound tube of smaller diameter than the corroded or damaged conduit. Earlier patents by the same inventor disclose machines for winding a helically wound pipe from a strip.

Pipe winding machines that travel along the inside of conduits while relining them, such as those disclosed in the applicant's earlier patent application

PCT/AU99/00808 titled "Method and Apparatus for Winding a Helical Pipe from its Inside", become more elongate as their diameter reduces. There are a number of reasons for this including: the increasing ratio of strip-width to pipe diameter necessitating longer rollers and the difficulty in packaging componentry within the restricted diameter between such rollers. With these smaller diameter machines, those capable of winding pipes of 500mm or less in diameter and particularly those capable of winding pipes of 200mm or less in diameter, feeding of the end of the strip into the machine at the commencement of winding becomes difficult. Also access for maintenance to the pinch rollers that drive the strip becomes problematic. Finally, because the small diameter machines are elongate it can be difficult to get them in and out of the conduit to be relined through small vertical man holes.

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Preferably the leading portion contains control components.

Preferably the hinge means comprises a universal joint.

Specific embodiments of the invention will now be described in some further detail with reference to and as illustrated in the accompanying figures. These embodiments are illustrative, and are not meant to be restrictive of the scope of the invention.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

Preferred embodiments of the invention are illustrated in the accompanying representations in which:

Figure 1 is a schematic cut away view of an underground conduit with a pipe winding machine in operation lining the conduit.

Figure 2 is a perspective view of a pipe winding machine.

Figure 3 shows a perspective view of a pipe winding machine according to a first embodiment of the invention.

Figure 4 shows a partial view of the pipe winding machine of Figure 3 in a first orientation.

Figure 5 shows a partial view of the pipe winding machine of Figure 3 in a second orientation.

Figure 5a shows a magnified partial view of the pipe winding machine of Figure 3 in a third orientation.

Preferably the further comprises a means for adjusting the angle at which the strip exits the strip guide.

Preferably the frame further comprises an adjustment means for adjusting both the radial positions of the guide rollers and the angles of the axes of the guide rollers relative to the longitudinal axis of the machine.

According to a second aspect of the invention there is provided an elongate machine for winding a helically wound pipe within a conduit from a strip having complementary connecting formations extending along opposite edge portions thereof and which are adapted to interlock when the strip is helically wound, the machine comprising:

- a leading portion having means for supplying power;

- an intermediate portion rotatably connected to the leading portion, the rotatable connection arranged to allow transmission of power from the leading portion to the intermediate portion during rotation;

- a trailing portion having at least three circumferentially spaced guide rollers adapted to bear against the inner periphery of the pipe being wound and a strip drive roller means for driving the strip around the outside of the rollers so as to cause the adjacent edge portions of adjacent convolutions of the strip to interlock; and

- hinge means hingedly connecting the trailing portion to the intermediate portion,

wherein, in use, the intermediate and trailing portions rotate together with respect to the leading portion and wherein the leading and intermediate portions can pivot about the hinge means with respect to the trailing portion to allow the machine to be pulled from a horizontal conduit up through and out of a manhole.

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strip 12 must be fed through the machine axially. In practice, particularly with smaller diameter machines, this is difficult. Also access to the pinch rollers 27 and 28 for maintenance purposes can be difficult.

With the first embodiment of the invention shown in Figures 3, 4 and 5, (and with the second embodiment of the invention shown in Figures 6 and 7) an elongate strip guide 40 is provided to guide the strip axially through the machine 10 from an entrance position 42 adjacent the trailing end 13 of the machine 10 to an exit position 44 adjacent rollers 30 and 31. The exit position 44 is shown most clearly in Figures 5 and 5a. The strip 12 exits from the strip guide 40 between rollers 30 and 31. Rollers 30, 31, 32 and 37 are shown in dashed outline to clearly reveal the strip guide 40. In practice, when the machine is placed within a pipe to be relined, once a first convolution of strip has been wound, that convolution provides a "track" for the strip so that the strip forms a continuous helically wound pipe within the pipe being relined.

With this embodiment of the invention, the strip guide 40 comprises a continuous tube with a cross-section that is substantially rectangular. Other embodiments of the invention may use a different tube arrangement or a series of adjacent rollers as a strip guide.

The winding machine 10 is adjustable to vary the diameter of the pipe being wound. Radial arms 16 move outwards under hydraulic pressure within cylinders 15 as shown in Figure 3. A spring arrangement (not shown) is provided to retract arms 16.

During winding of a pipe hydraulic pressure is applied to cylinders 15 to ensure that the maximum diameter is achieved within the particular section of that pipe being re-lined.

Figure 6 shows a perspective view of a pipe winding machine according to a second embodiment of the invention with some components removed for clarity.

Figure 7 shows the pipe winding machine of Figure 6 in a bent condition.

An elongate machine 10 for helically winding a helically wound pipe from a strip having complimentary connecting formations extending along opposite edge portions thereof and which are adapted to interlock when the strip is helically wound, according to a first embodiment of the invention, is shown in Figures 3, 4 and 5. Referring first to Figure 3, the machine 10 comprises a leading power supply and control portion 17, an intermediate portion 18 rotatably connected to the leading portion 17 by a rotary union assembly 72, and a trailing portion 19. The trailing portion 19 has eight circumferentially spaced guide rollers 31 to 37 (only 32 is shown in Figure 3) which are adapted to bear against the inner periphery of the pipe being wound. The trailing portion 19 includes a drive assembly 24 mounted to the trailing end 13 of the machine 10. A hinge 70 is located between the intermediate portion 18 and the trailing portion 19. Referring to Figures 1 and 3, the hinge 70 allows the machine to be bent so that it can be pulled from a horizontal conduit 5 up through a vertical man hole 4.

An earlier pipe winding machine 10' shown in Figure 2 (disclosed in the applicant's earlier patent application PCT/AU99/00808) shows how a helical pipe can be wound by driving a strip of ribbed plastics material a helical path and interlocking adjacent edge portions of adjacent convolutions of the strip 12. A hydraulic fluid hose 51 located at the front of the machine provides power through a hydraulic coupling 52 to a hydraulic motor 26. Hydraulic motor 26 drives gear box 25 which drives pinch rollers 27 and 28 through drive shafts 46. In order to commence winding of a new liner pipe with the machine 10 - shown in Figure 2, it is first necessary to engage the end of the strip 12 between the drive rollers 27 and 28. In order to achieve this, the

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hydraulic power source does not rotate relative to the conduit being lined. A rotary union assembly 72 enables transmission of power and control signal from the leading portion 17 to the intermediate portion 18 during rotation of the intermediate portion 18 as a pipe is wound. Intermediate portion 18 is connected via a universal joint 71 to the trailing portion of the machine 19. This universal joint ensures that the intermediate portion 18 and the trailing portion 19 rotate in unison even when their axes of rotation are not coincident (for instance, when a bend is being negotiated).

An advantage of both the first and second embodiments of the invention, is that they allow simple "spot repair" of a particular section of pipe. To achieve such a repair, strip 12 is first inserted into the pinch rollers 27 and 28 of the drive assembly 24 and driven partially into the strip guide 40 (without exiting its exit 44). Next, the machine 10 is placed into the mouth of the pipe requiring spot repair. The machine 10 is then dragged into the portion requiring spot repair using a cable. Once in position, the hydraulic motor 26 of the drive assembly 24 is activated causing the strip 12 to exit the strip guide 40 and to commence winding a section of helical pipe. The length of strip 40 can be selected to ensure the appropriate length of pipe is wound to effect the spot repair.

While the present invention has been described in terms of preferred embodiments in order to facilitate a better understanding of the invention, it should be appreciated that various modifications can be made without departing from the principles of the invention. Therefore, the invention should be understood to include all such modifications within its scope.

The hydraulic cylinders 15 only provide limited travel. Therefore shims or spacers can also be used prior to the commencement of winding to suit particular pipe diameters.

Referring to Figure 5, at the exit of the strip guide 40 is a strip guide exit angle adjuster 41. This adjuster 41 is mounted to the frame 20 of the pipe winding machine 10 by pivot 43 and helix angle adjuster screw 45. Adjuster 41 is connected to the exit end of the strip guide 40 and the flexibility of the strip guide 40 allows limited adjustment of the strip exit angle from mouth 44. The adjustability allows approximate matching of the strip exit angle with the helix angle of the strip being wound.

Referring to Figure 4 the drive assembly 24 can be seen mounted to the trailing end 13 of the frame 20 of the pipe winding machine 10. The drive assembly 24 comprises a pair of outer pinch rollers 28 which drive against inner pinch roller 27 (not visible in Figure 4) to force the strip 12 in compression through strip guide tube 40 to around the outside of the rollers 30 to 37 so as to follow the helical path and cause the adjacent edge portions of adjacent convolutions of the strip 12 to interlock. The entire drive assembly 24 can be readily removed from the trailing end 13 of the frame 20 for maintenance or replacement. The initial feeding of the end of the strip 12 through the drive rollers 28 and 27 is easily achieved due to the location of the drive assembly 24 (compared to that of the pinch box and drive rollers 27 and 28 of the earlier pipe winding machine 10' as shown in Figure 2).

Referring to Figures 6 and 7, a second embodiment of the invention is shown in which the hinge joint 70 (as shown in Figure 3) is replaced by a universal joint 71. With this embodiment of the invention, the pipe winding machine 10 can continue to wind pipe as it traverses bends. Leading portion 17 which is connected to the

4. A machine as claimed in any one of claims 1 to 3 further comprising a means for adjusting the angle at which the strip exits the strip guide.
5. A machine as claimed in any one of claims 1 to 3 further comprising:
  - leading portion having means for supplying power;
  - an intermediate portion rotatably connected to the leading portion, the rotatable connection arranged to allow transmission of power from the leading portion to the intermediate portion during rotation; and
  - hinge means hingedly connecting the frame the intermediate portion, wherein, in use, the intermediate portion and frame rotate together with respect to the leading portion and wherein the leading and intermediate portions can pivot about the hinge means with respect to the trailing portion to allow the machine to be pulled from a horizontal conduit up through and out of a manhole.
6. A machine as claimed in claim 5 wherein the leading portion contains control components.
7. A machine as claimed in either of claims 5 or 6 wherein the hinge means comprises a universal joint.
8. An elongate machine for winding a helically wound pipe within a conduit from a strip having complementary connecting formations extending along opposite edge portions thereof and which are adapted to interlock when the strip is helically wound, the machine comprising:
  - a leading portion having means for supplying power;
  - an intermediate portion rotatably connected to the leading portion, the rotatable connection arranged to allow transmission of power from the leading portion to the intermediate portion during rotation;
  - a trailing portion having a frame supporting at least three circumferentially

**THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:**

1. An elongate machine for winding a helically wound pipe from a strip having complementary connecting formations extending along opposite edge portions thereof and which are adapted to interlock when the strip is helically wound, the machine comprising:
  - a frame having at least three circumferentially spaced guide rollers adapted to bear against the inner periphery of the pipe being wound, the rollers forming a guide to enable the strip to follow a helical path along which the strip is directed when the machine is in use, the frame having a leading end and a trailing end;
  - an elongate strip guide for guiding the strip axially through the machine from an entrance position adjacent the trailing end of the machine to an exit position adjacent one of the at least three guide rollers and facing towards the helical path;
  - strip drive roller means, mounted to the trailing end of the frame adjacent the entrance position, for driving the strip through the strip guide in compression to around the outside of the rollers so as to follow the helical path and cause the adjacent edge portions of adjacent convolutions of the strip to interlock; and
  - drive means for driving the strip drive roller means,
  - whereby, in use, the strip is continuously driven by the strip drive roller means through the strip guide to a position adjacent the last convolution wound to thereby form a helical pipe.
2. A machine as claimed in claim 1 wherein the strip guide comprises a continuous tube.
3. A machine as claimed in claim 2 wherein the continuous tube has a cross-section substantially rectangular in shape.

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13. A machine as claimed in either of claims 11 or 12 further comprising a means for adjusting the angle at which the strip exits the strip guide.
14. A machine substantially as hereinbefore described with reference to and as illustrated in figures 3, 4, 5 and 5a.
15. A machine substantially as hereinbefore described with reference to and as illustrated in figures 6 and 7.

spaced guide rollers adapted to bear against the inner periphery of the pipe being wound and a strip drive roller means for driving the strip around the outside of the rollers so as to cause the adjacent edge portions of adjacent convolutions of the strip to interlock; and

hinge means hingedly connecting the trailing portion to the intermediate portion,

wherein, in use, the intermediate and trailing portions rotate together with respect to the leading portion and wherein the leading and intermediate portions can pivot about the hinge means with respect to the trailing portion to allow the machine to be pulled from a horizontal conduit up through and out of a manhole.

9. A machine as claimed in claim 8 wherein the leading portion contains control components.
10. A machine as claimed in either of claims 8 or 9 wherein the hinge means comprises a universal joint.
11. A machine as claimed in any one of claims 8, 9 or 10 further comprising an elongate strip guide for guiding the strip axially through the machine from an entrance position adjacent the trailing end of the machine to an exit position adjacent one of the at least three guide rollers and facing towards the helical path, wherein the strip drive roller means is mounted to the trailing end of the frame adjacent the entrance position and, in use, the strip drive roller means drives the strip through the strip guide in compression.
12. A machine as claimed in claim 11 wherein the continuous tube has a cross-section substantially rectangular in shape.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU02/00736

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| Patent Document Cited in<br>Search Report |          |     | Patent Family Member |    |         |    |         |
|-------------------------------------------|----------|-----|----------------------|----|---------|----|---------|
| WO                                        | 00/17564 | AU  | 61826/99             | BR | 9914017 | EP | 1115996 |
| WO                                        | 98/34742 | AU  | 57422/98             | TW | 442378  |    |         |
| WO                                        | 90/05873 | AU  | 27884/89             | DE | 9005873 |    |         |
| WO                                        | 89/11060 | AU  | 35594/89             | EP | 418257  | HK | 1006589 |
|                                           |          | JP  | 1280510              | US | 5101863 |    |         |
| WO                                        | 89/06738 | AU  | 29423/89             | CA | 1310261 | EP | 357711  |
|                                           |          | NO  | 893597               | US | 4865127 |    |         |
| WO                                        | 87/05677 | AU  | 72040/87             | CA | 1309333 | DK | 6025/87 |
|                                           |          | EP  | 262183               | FI | 875033  | GR | 8760455 |
|                                           |          | HK  | 1127/93              | IN | 167882  | NO | 874790  |
|                                           |          | NZ  | 219615               | US | 4995929 |    |         |
| AU                                        | 81719/91 | NIL |                      |    |         |    |         |
| US                                        | 4029932  | AU  | 13675/76             | CA | 1039983 |    |         |
| US                                        | 5799701  | AU  | 32653/95             | CN | 1046994 | EP | 756130  |
|                                           |          | WO  | 9606296              |    |         |    |         |
| FR                                        | 2686678  | NIL |                      |    |         |    |         |

END OF ANNEX

END OF ANNEX

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU02/00736

| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |                                                                                               |                       |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------|
| Category*                                             | Citation of document, with indication, where appropriate, of the relevant passages            | Relevant to claim No. |
| A                                                     | WO 89/11060 A (RIB LOC AUSTRALIA PTY LTD) 16 November 1989<br>See entire specification        |                       |
| A                                                     | WO 89/06738 A (KOSTER) 27 JULY 1989<br>See entire specification                               |                       |
| A                                                     | WO 87/05677 A (RIB LOC AUSTRALIA PTY LTD) 24 SEPTEMBER 1987<br>See entire specification       |                       |
| A                                                     | AU 81719/91 A (WORKS CIVIL CONSTRUCTION LIMITED) 25 FEBRUARY 1993<br>See entire specification |                       |
| A                                                     | US 4029932 A (COOK) 14 JUNE 1977<br>See entire specification                                  |                       |
| A                                                     | US 5799701 A (KITAHASHI ET AL) 1 SEPTEMBER 1998<br>See entire specification                   |                       |
| A                                                     | FR 2686678 A (CELLIER) 30 JULY 1993<br>See entire specification                               |                       |

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/AU02/00736

| <b>A. CLASSIFICATION OF SUBJECT MATTER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                      |                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Int. Cl. <sup>7</sup> : F16L 58/02, 58/16, 57/06, 55/162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                                   |
| According to International Patent Classification (IPC) or to both national classification and IPC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                      |                                                                   |
| <b>B. FIELDS SEARCHED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                      |                                                                   |
| Minimum documentation searched (classification system followed by classification symbols)<br>F16L 58/02, 58/16, 57/06, 55/162, 55/18, B29D 23/00, 63/32                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |                                                                   |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched<br>AU IPC : F16L 58/02, 58/16, 57/06, 55/162, 55/18, B29C 63/32, 23/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                      |                                                                   |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)<br>DWPI (B29D 23/00 OR F16L 55/18) AND (SPIR+OR HELI+ OR WIND+)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                      |                                                                   |
| <b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                      |                                                                   |
| Category*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.                                             |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | WO 00/17564 A (MENZEL) 30 MARCH 2000<br>See entire specification                     |                                                                   |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | WO 98/34742 A (RIB LOC AUSTRALIA PTY LTD) 13 AUGUST 1998<br>See entire specification |                                                                   |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | WO 90/05873 A (SIEMANS AG) 31 MAY 1990<br>See entire specification                   |                                                                   |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                      |                                                                   |
| <p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"Z" document member of the same patent family</p> |                                                                                      |                                                                   |
| Date of the actual completion of the international search<br>5 August 2002                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                      | Date of mailing of the international search report<br>12 AUG 2002 |
| Name and mailing address of the ISA/AU<br>AUSTRALIAN PATENT OFFICE<br>PO BOX 200, WODEN ACT 2606, AUSTRALIA<br>E-mail address: pat@ipaustralia.gov.au<br>Facsimile No. (02) 6285 3929                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                      | Authorized officer<br>R. WEBER<br>Telephone No : (02) 6283 2546   |

**INTERNATIONAL SEARCH REPORT**

International application No.  
**PCT/AU02/00736**

**Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos :  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos :  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

**Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

Claim 1 is directed to an elongate machine for winding a helically wound pipe including an elongate strip guide with strip guide rollers and drive means. These features as claimed being considered to be the first special technical feature whereas claim 8 defines an elongate machine for winding a helically wound pipe having the basic components as defined in claim 1 and also known from WO 00/17564 and further including the second special technical feature of having the hinge means between the intermediate and trailing portions.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## PATENT COOPERATION TREATY

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**MADDERNS****PCT****22 AUG 2002**  
**NOTIFICATION CONCERNING**  
**SUBMISSION OR TRANSMITTAL**  
**OF PRIORITY DOCUMENT**

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

**MADDERNS**  
Level 1  
64 Hindmarsh Square  
Adelaide, South Australia 5000  
AUSTRALIE

|                                                                      |                                                                       |
|----------------------------------------------------------------------|-----------------------------------------------------------------------|
| Date of mailing (day/month/year)<br>01 August 2002 (01.08.02)        | <b>IMPORTANT NOTIFICATION</b>                                         |
| Applicant's or agent's file reference<br>20414PCT                    |                                                                       |
| International application No.<br>PCT/AU02/00736                      | International filing date (day/month/year)<br>07 June 2002 (07.06.02) |
| International publication date (day/month/year)<br>Not yet published | Priority date (day/month/year)<br>08 June 2001 (08.06.01)             |
| Applicant<br>RIB LOC AUSTRALIA PTY LTD et al                         |                                                                       |

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
3. An asterisk(\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
4. The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

| <u>Priority date</u>    | <u>Priority application No.</u> | <u>Country or regional Office<br/>or PCT receiving Office</u> | <u>Date of receipt<br/>of priority document</u> |
|-------------------------|---------------------------------|---------------------------------------------------------------|-------------------------------------------------|
| 08 June 2001 (08.06.01) | PR 5572                         | AU                                                            | 25 June 2002 (25.06.02)                         |

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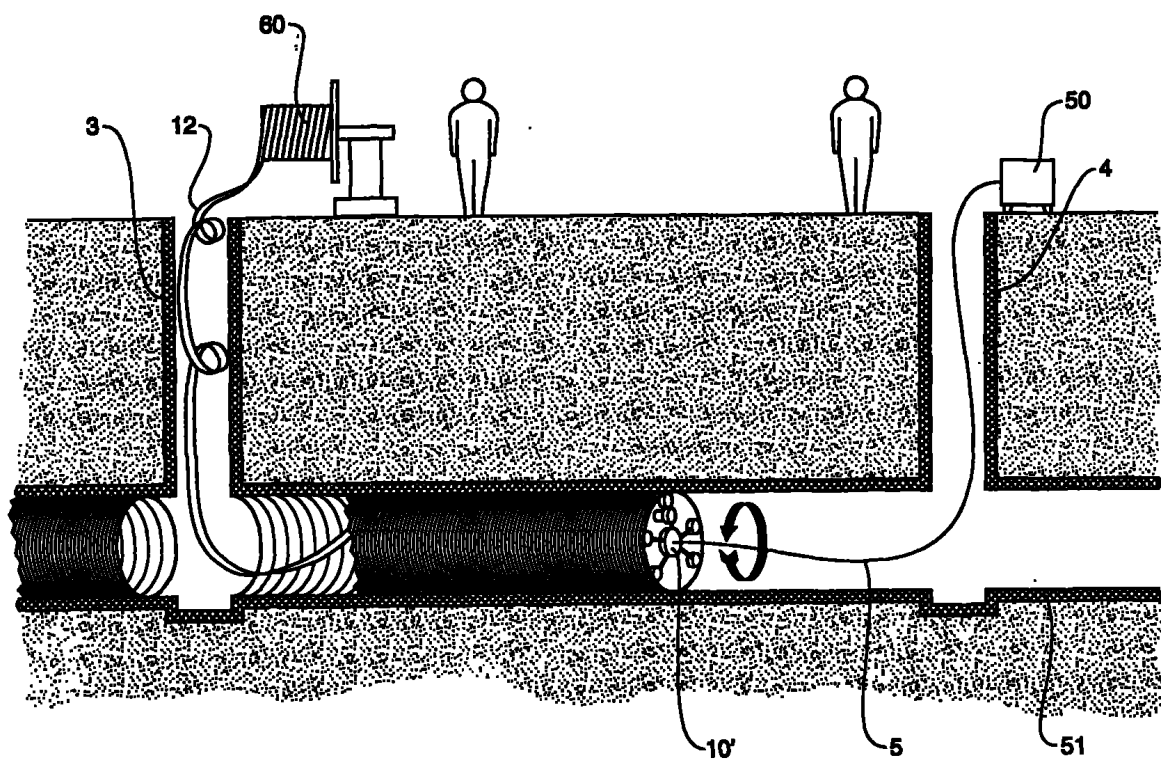


Fig 1

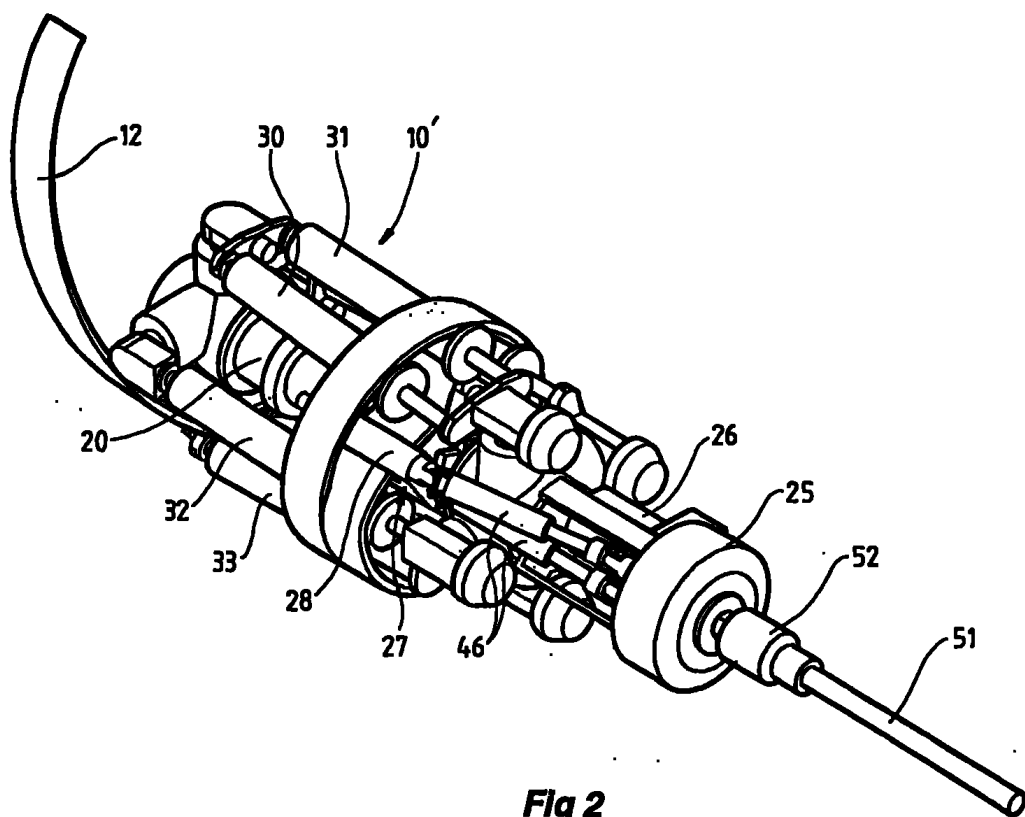


**Fig 2**

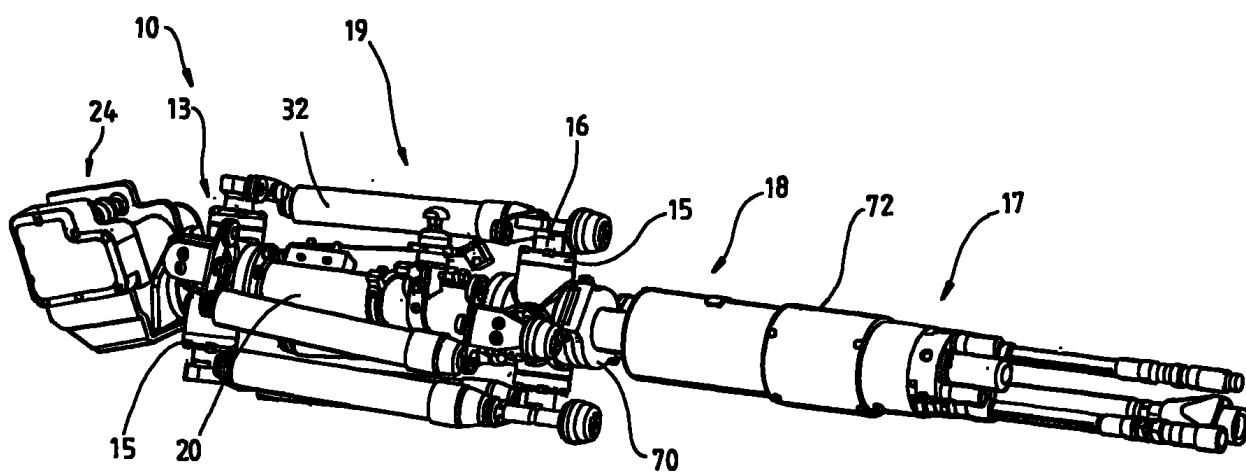


Fig 3

44 4

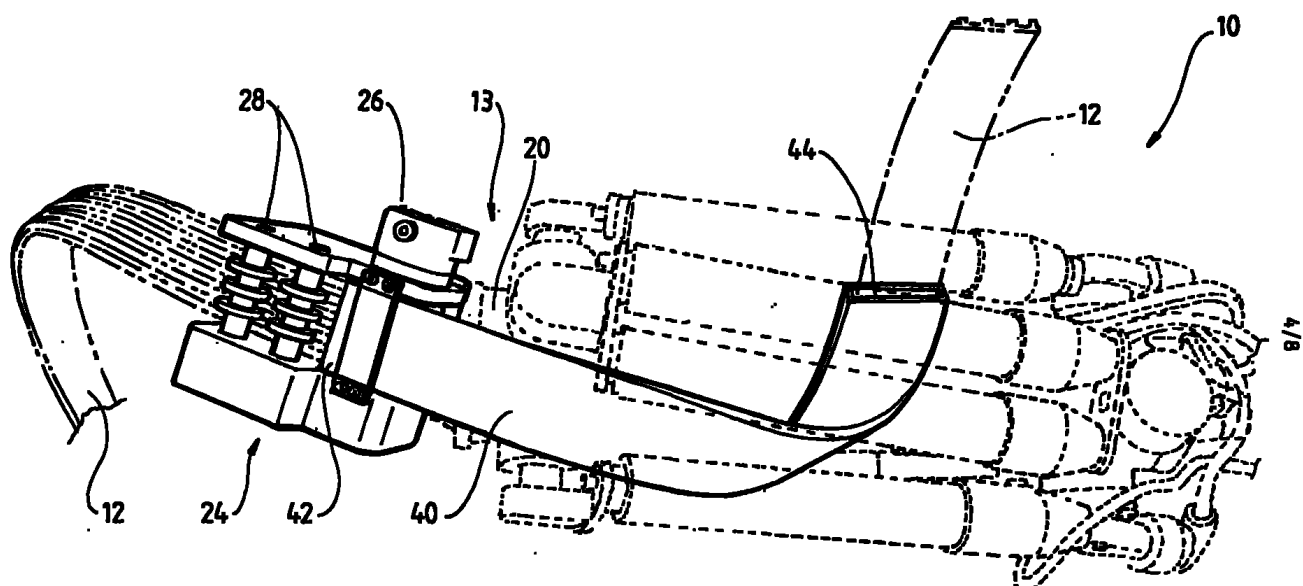


Fig 4

46  
45

5/8

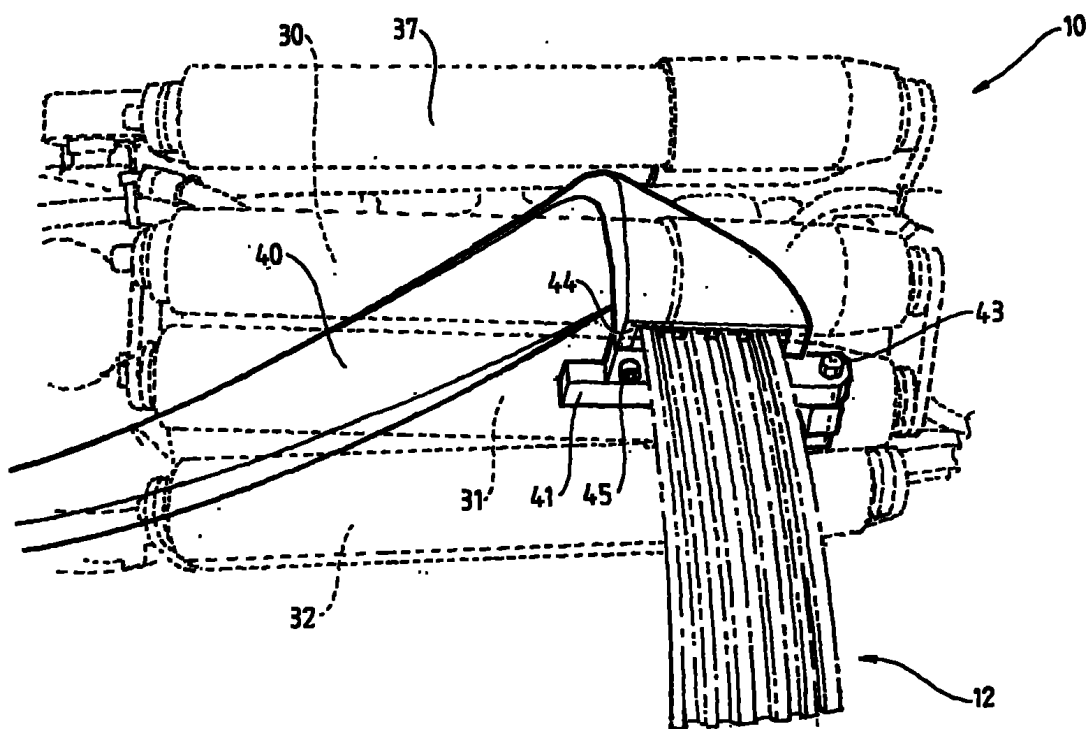


Fig 5

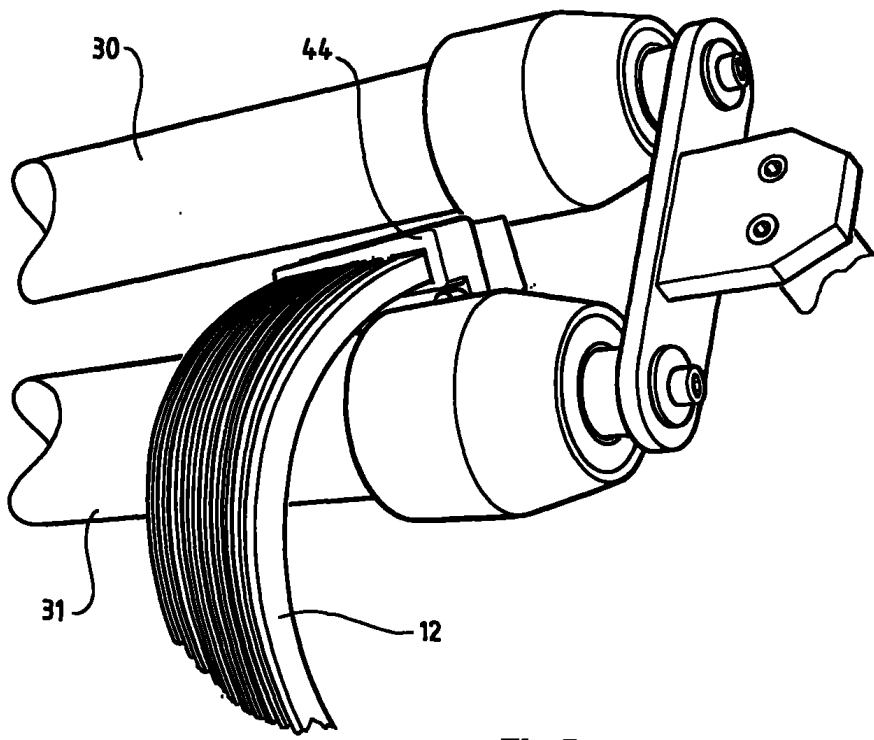


Fig 5a

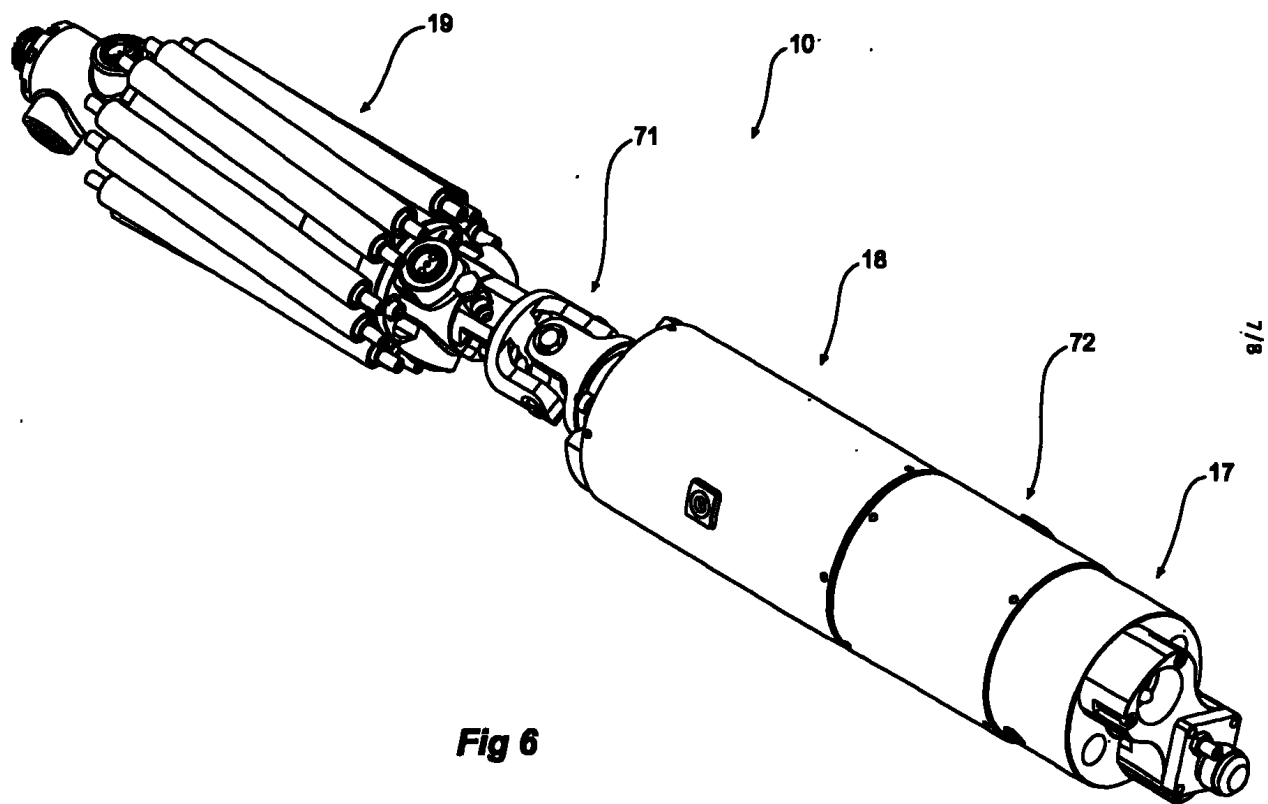


Fig 6

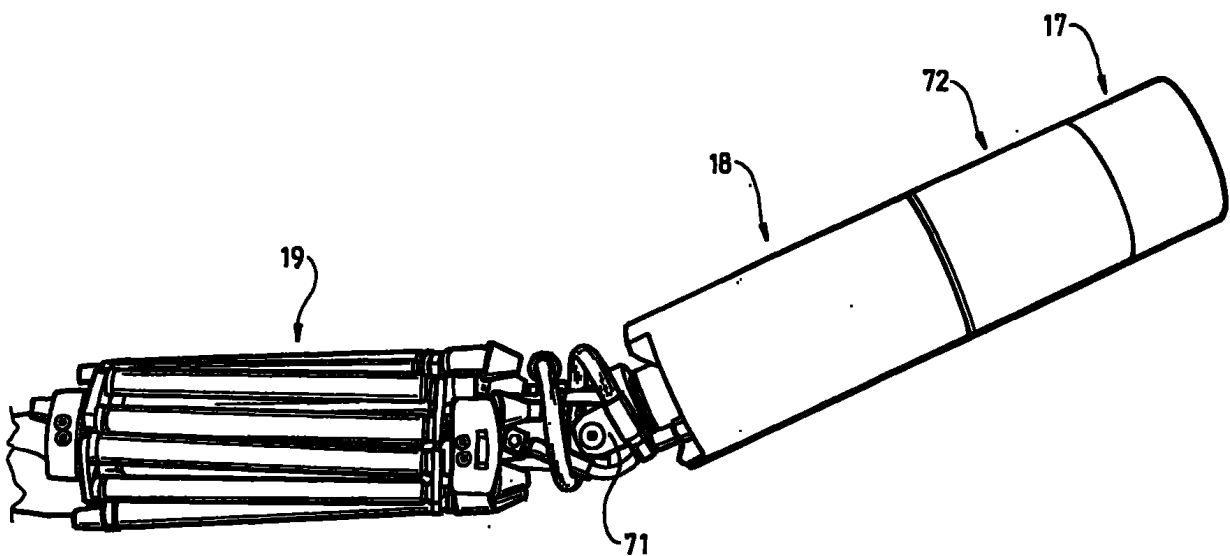


Fig 7

48  
49

## **MÁQUINA PARA ENROLLAR TUBOS DE DIÁMETRO PEQUEÑO *IN SITU***

### **CAMPO DE LA INVENCION**

Esta invención se relaciona con un aparato para enrollar tubos a partir de una cinta alargada. En particular, la invención se relaciona con aparatos para enrollar tubos helicoidales de diámetro pequeño.

### **ANTECEDENTES DE LA INVENCION**

Es de conocimiento actual la reparación de conductos tales como los caños cloacales por medio de la inserción de un tubo bobinado en forma helicoidal de menor diámetro que el conducto corroído o dañado. Las patentes anteriores del mismo inventor revelan máquinas para enrollar un tubo bobinado en forma helicoidal a partir de una cinta.

Las máquinas para enrollar tubos que se desplazan por el interior de conductos mientras se los reacondiciona, tales como las reveladas en la solicitud de patente anterior del solicitante PCT/AU99/00808 con título "Método y Aparato para Enrollar un Tubo Helicoidal desde su Interior", se toman más alargadas a medida que se reducen sus diámetros. Existen varias razones para esto entre las que se incluyen: la proporción creciente de ancho de cinta respecto del diámetro del tubo que hace necesario el uso de rodillos más largos y la dificultad de insertar componentes dentro del diámetro restringido que se encuentra entre tales rodillos. Con estas máquinas de diámetros menores, aquellas que tienen la capacidad de enrollar tubos de 500 mm o menores en diámetro y en particular aquellas que tienen la capacidad de enrollar tubos de 200 mm o menores en diámetro, se toma difícil el suministro del final de la cinta dentro de la máquina al comienzo del enrollado. Asimismo se toma problemático el acceso para el mantenimiento de los rodillos tensores que

impulsan a la cinta. Por último, debido a que las máquinas con menores diámetros son alargadas puede ser difícil colocar a las mismas dentro y fuera del conducto a ser reacondicionado a través de pequeños pozos de registro verticales.

Es un objeto de la invención superar al menos algunos de los problemas precedentes.

## **RESUMEN DE LA INVENCION**

De acuerdo con un primer aspecto de la invención se provee una máquina alargada para enrollar un tubo bobinado en forma helicoidal a partir de una cinta que tiene formaciones de conexión complementarias que se extienden a lo largo de porciones opuestas de los bordes de la misma y que están adaptadas para encajar cuando se bobina la cinta en forma helicoidal, en donde la máquina comprende:

un marco que tiene al menos tres rodillos guía espaciados sobre una circunferencia adaptados para apoyarse contra la periferia interna del tubo que se está bobinando, donde los rodillos forman una guía para permitir que la cinta siga un trayecto helicoidal a lo largo del cual se dirige la cinta cuando la máquina está en uso, donde el marco tiene un extremo anterior y un extremo trasero:

una guía de cinta alargada para guiar a la cinta en forma axial a través de la máquina desde una posición de entrada adyacente al extremo posterior de la máquina hacia una posición de salida adyacente a uno de los al menos tres rodillos guía y enfrentando hacia el trayecto helicoidal;

medios de rodillos para impulsar la cinta, montados sobre el extremo posterior del marco adyacente a la posición de entrada, para impulsar a la cinta

a través de la guía de cinta en compresión hacia alrededor del exterior de los rodillos de modo de seguir el trayecto helicoidal y hacer que las porciones de los bordes adyacentes de las vueltas adyacentes de la cinta se encajen. y

medios de impulsión para impulsar los medios de rodillos para impulsar la cinta,

en donde, en funcionamiento, la cinta es impulsada en forma continua por los medios de rodillos para impulsar la cinta a través de la guía de cinta hasta una posición adyacente a la última vuelta bobinada para formar con la misma un tubo helicoidal.

Preferentemente en la máquina la guía de cinta comprende un tubo continuo con una sección en corte de forma esencialmente rectangular.

Preferentemente lo adicional comprende medios para ajustar el ángulo con el cual la cinta sale de la guía de la cinta.

Preferentemente el marco además comprende un medio de ajuste para ajustar tanto la posición radial de los rodillos guía como los ángulos de los ejes de los rodillos guía relacionados con el eje longitudinal de la máquina.

De acuerdo con un segundo aspecto de la invención se provee una máquina alargada para enrollar un tubo bobinado en forma helicoidal dentro de un conducto a partir de una cinta que tiene formaciones de conexión complementarias que se extienden a lo largo de porciones opuestas de los bordes de la misma y que están adaptadas para encajar cuando se bobina la cinta en forma helicoidal, en donde la máquina comprende:

una porción delantera que tiene medios para suministrar potencia:

una porción intermedia conectada en rotación con la porción delantera, donde la conexión en rotación está dispuesta para permitir la transmisión de potencia desde la porción delantera a la porción intermedia durante la rotación;

una porción trasera que tiene al menos tres rodillos guía espaciados sobre una circunferencia adaptados para apoyarse contra la periferia interna del tubo que se está bobinando, y un medio de rodillos para impulsar la cinta para impulsar la cinta alrededor del exterior de los rodillos de modo de hacer que las porciones de los bordes adyacentes de las vueltas adyacentes de la cinta se encajen; y

medios de bisagras para conectar con bisagras la porción trasera con la porción intermedia;

en donde, en funcionamiento, las porciones intermedia y trasera giran juntas respecto de la porción delantera y en donde las porciones delantera e intermedia pueden pivotar alrededor del medio de bisagras respecto de la porción trasera para permitir que la máquina pueda ser levantada desde un conducto horizontal a través y hacia afuera de un pozo de registro.

Preferentemente la porción delantera contiene componentes de control.

Preferentemente los medios de bisagra comprenden una junta universal.

Se describirán ahora realizaciones específicas de la invención con más detalles donde se hace referencia a las figuras que la acompañan y tal como se ilustra. Estas realizaciones son ilustrativas, y no se pretende que sean restrictivas del alcance de la invención.

### **DESCRIPCIÓN DETALLADA DE REALIZACIONES PREFERIDAS DE LA INVENCION**

Se ilustran las realizaciones preferidas de la invención en las representaciones adjuntas en las cuales:

La Figura 1 es una vista transversal de un conducto subterráneo donde opera una máquina para enrollar tubos reacondicionando el conducto.

La Figura 2 es una vista en perspectiva de una máquina para enrollar tubos.

La Figura 3 muestra una vista en perspectiva de una máquina para enrollar tubos de acuerdo con una primera realización de la invención.

La Figura 4 muestra una vista parcial de la máquina para enrollar tubos de la Figura 3 en una primera orientación.

La Figura 5 muestra una vista parcial de la máquina para enrollar tubos de la Figura 3 en una segunda orientación.

La Figura 5a muestra una vista parcial aumentada de la máquina para enrollar tubos de la Figura 3 en una tercera orientación.

La Figura 6 muestra una vista en perspectiva de una máquina para enrollar tubos de acuerdo con una segunda realización de la invención donde se han removido algunos componentes teniendo como fin la claridad.

La Figura 7 muestra la máquina para enrollar tubos de la Figura 6 en condición de plegado.

Una máquina alargada 10 para enrollar en forma helicoidal un tubo bobinado a partir de una cinta que tiene formaciones de conexión complementarias que se extienden a lo largo de porciones opuestas en los bordes de la misma y que están adaptadas para encajar cuando se bobina la

cinta en forma helicoidal, de acuerdo con una primera realización de la invención, se muestra en las Figuras 3, 4 y 5. Refiriéndonos primero a la Figura 3, la máquina 10 comprende una porción delantera de suministro de potencia y de control 17, una porción intermedia 18 conectada en rotación con la porción delantera 17 por medio de un montaje de unión giratorio 72, y una porción trasera 19. La porción trasera 19 tiene ocho rodillos guía espaciados sobre una circunferencia 31 a 37 (solamente se muestra el 32 en la Figura 3) los cuales están adaptados para apoyarse contra la periferia interna del tubo que se está bobinando. La porción trasera 19 incluye un montaje de impulso 24 montado al extremo posterior 13 de la máquina 10. Una bisagra 70 está colocada entre la porción intermedia 18 y la porción trasera 19. Refiriéndonos a las Figuras 1 y 3, la bisagra 70 permite que la máquina se pliegue de modo de poder ser levantada desde un conducto horizontal 5 a través de un pozo de registro vertical 4.

Una máquina para enrollar tubos 10' anterior mostrada en la Figura 2 (revelada en la solicitud de patente anterior del solicitante PCT/AU99/00808) muestra cómo un tubo helicoidal puede ser bobinado por medio de la impulsión de una cinta de material plástico estriado en un trayecto helicoidal y encajando porciones de bordes adyacentes de vueltas adyacentes de la cinta 12. Una manguera con fluido hidráulico 51 colocada en la parte delantera de la máquina provee potencia a través de un acople hidráulico 52 con un motor hidráulico 26. El motor hidráulico 26 impulsa la caja de engranajes 25 la que impulsa a los rodillos tensores 27 y 28 por medio de los ejes de impulsión 46. A fin de comenzar a enrollar un nuevo tubo de reacondicionamiento con la máquina 10, mostrada en la Figura 2, en principio es necesario enganchar el extremo de la

cinta 12 entre los rodillos impulsores 27 y 28. A fin de lograr esto, se debe alimentar la cinta 12 a través de la máquina de manera axial. En la práctica, en particular con máquinas de menores diámetros, esto es difícil. Asimismo puede ser difícil el acceso a los rodillos tensores 27 y 28 para propósitos de mantenimiento.

Con la primera realización de la invención ilustrada en las Figuras 3, 4 y 5 (y con la segunda realización de la invención ilustrada en las Figuras 6 y 7) se provee una guía de cinta alargada 40 para guiar a la cinta de manera axial a través de la máquina 10 desde una posición de entrada 42 adyacente al extremo posterior 13 de la máquina 10 a una posición de salida 44 adyacente a los rodillos 30 y 31. La posición de salida 44 se muestra de manera más clara en las Figuras 5 y 5a. La cinta 12 sale de la guía de cinta 40 entre los rodillos 30 y 31. Se muestran los rodillos 30, 31, 32 y 37 con contorno de guiones para revelar de manera clara a la guía de cinta 40. En la práctica, cuando la máquina está colocada dentro de una tubería a ser reacondicionada, una vez que se ha bobinado una primera vuelta de cinta, esa vuelta brinda una "pista" para la cinta de modo que la cinta forma un tubo continuo bobinado de manera helicoidal dentro de la tubería que se está reacondicionando.

Con esta realización de la invención, la guía de cinta 40 comprende un tubo continuo con una sección en corte que es esencialmente rectangular. Otras realizaciones de la invención pueden usar un arreglo de tubos diferente o una serie de rodillos adyacentes como guía de cinta.

La máquina para enrollar 10 es ajustable para variar el diámetro del tubo que se esté bobinando. Como se muestra en la Figura 3, los brazos radiales 16

se mueven hacia fuera bajo la presión hidráulica dentro de los cilindros 15. Se provee un arreglo de resortes (no mostrado) para retraer los brazos 16.

Durante el enrollado de un tubo se aplica presión hidráulica a los cilindros 15 para asegurarse de que se logre el máximo diámetro en la sección en particular de ese tubo que se está reacondicionando.

Los cilindros hidráulicos 15 solamente proveen un recorrido limitado. Por lo tanto, se pueden usar también suplementos o espaciadores antes de comenzar el enrollado para ajustarse a diámetros de tubos en particular.

Refiriéndonos a la Figura 5, en la salida de la guía de cinta 40 hay un ajustador de ángulo de salida de la guía de cinta 41. Se monta el ajustador 41 al marco 20 de la máquina para enrollar tubos 10 por medio del pivote 43 y del tornillo de ajuste de ángulo de hélice 45. Se conecta el ajustador 41 al extremo de salida de la guía de cinta 40 y la flexibilidad de la guía de cinta 40 permite un ajuste limitado del ángulo de salida de la cinta desde la boca 44. La ajustabilidad permite la adaptación aproximada del ángulo de salida de la cinta con el ángulo de hélice de la cinta que se está bobinando.

Refiriéndonos a la Figura 4 el montaje de impulsión 24 puede ser visto montado al extremo posterior 13 del marco 20 de la máquina para enrollar tubos 10. El montaje de impulsión 24 comprende un par de rodillos tensores externos 28 que se impulsan en contra del rodillo tensor interno 27 (no visible en la Figura 4) para forzar a la cinta 12 en compresión a través del tubo de la guía de cinta 40 alrededor del exterior de los rodillos 30 a 37 de modo de seguir el trayecto helicoidal y hacer que las porciones de bordes adyacentes de las vueltas adyacentes de la cinta 12 se encajen. El montaje de impulsión 24 completo puede ser removido prontamente del extremo posterior 13 del marco

20 para su mantenimiento o reemplazo. La alimentación inicial del extremo de la cinta 12 por medio de los rodillos de impulsión 28 y 27 se logra con facilidad debido a la localización del montaje de impulsión 24 (comparado con el de la caja tensora y los rodillos de impulsión 27 y 28 de la máquina para enrollar tubos anterior 10' tal como se muestra en la Figura 2).

Refiriéndonos a las Figuras 6 y 7, se muestra una segunda realización de la invención en la que la junta de bisagra 70 (tal como se muestra en la Figura 3) es reemplazada por una junta universal 71. Con esta realización de la invención, la máquina para enrollar tubos 10 puede continuar enrollando tubos mientras atraviesa codos. La porción delantera 17 que está conectada con la fuente de potencia hidráulica no gira en relación con el conducto al que se está reacondicionando. Un montaje de unión rotatorio 72 permite la transmisión de potencia y de señales de control desde la porción delantera 17 hasta la porción intermedia 18 durante la rotación de la porción intermedia 18 mientras se enrolla un tubo. La porción intermedia 18 está conectada por medio de una junta universal 71 a la porción trasera de la máquina 19. Esta junta universal asegura que la porción intermedia 18 y la porción trasera 19 giren al unísono aún cuando sus ejes de rotación no sean coincidentes (por ejemplo, cuando se esté pasando por una curva).

Una ventaja tanto de la primera como de la segunda realización de la invención es que es que las mismas permiten la "reparación puntual" sencilla de una sección del tubo en particular. A fin de lograr tal reparación, se inserta primeramente la cinta 12 en los rodillos tensores 27 y 28 del montaje de impulsión 24 y se impulsa a la misma de manera parcial en la gula de la cinta 40 (sin salirse de su salida 44). A continuación, se coloca la máquina 10 en la

boca de la tubería que necesite de la reparación puntual. Se arrastra entonces por medio de un cable a la máquina 10 dentro de la porción que requiere de la reparación puntual. Una vez que está en posición, se activa el motor hidráulico 26 del montaje de impulsión 24 haciendo que la cinta 12 salga de la guía de cinta 40 y que comience a enrollar una sección del tubo helicoidal. Se puede seleccionar la longitud de la cinta 40 para asegurar que se bobina la longitud adecuada del tubo para efectuar la reparación puntual.

Mientras que la presente invención ha sido descrita en función de las realizaciones preferidas a fin de facilitar una mejor comprensión de la invención, debería apreciarse que se pueden realizar varias modificaciones sin apartarse de los principios de la invención. En consecuencia, debe entenderse que la invención incluye todas tales modificaciones dentro de su alcance.

**REVINDICACIONES :**

1. Una máquina alargada para enrollar un tubo bobinado en forma helicoidal a partir de una cinta que tiene formaciones de conexión complementarias que se extienden a lo largo de porciones opuestas en los bordes de la misma y que están adaptadas para encajar cuando se bobina la cinta en forma helicoidal, la máquina **CARACTERIZADA PORQUE** comprende:

un marco que tiene al menos tres rodillos guía espaciados sobre una circunferencia adaptados para apoyarse contra la periferia interna del tubo que se está bobinando, donde los rodillos forman una guía para permitir que la cinta siga un trayecto helicoidal a lo largo del cual se dirige la cinta cuando la máquina está en uso, donde el marco tiene un extremo anterior y un extremo trasero;

una guía de cinta alargada para guiar a la cinta en forma axial a través de la máquina desde una posición de entrada adyacente al extremo posterior de la máquina hacia una posición de salida adyacente a uno de los al menos tres rodillos guía y enfrentando hacia el trayecto helicoidal;

medios de rodillos para impulsar la cinta, montados sobre el extremo posterior del marco adyacente a la posición de entrada, para impulsar a la cinta a través de la guía de cinta en compresión alrededor del exterior de los rodillos de modo de seguir el trayecto helicoidal y hacer que las porciones de los bordes adyacentes de las vueltas adyacentes de la cinta se encajen y

medios de impulsión para impulsar los medios de rodillo de impulsión de la cinta,

por medio de los cuales, en funcionamiento, los medios de rodillo de impulsión de la cinta impulsan a la cinta de manera continua por medio de la

guía de cinta hasta una posición adyacente a la última vuelta bobinada para de esa manera formar un tubo helicoidal.

2. Una máquina como se reivindica en la cláusula 1 CARACTERIZADA PORQUE la guía de la cinta comprende un tubo continuo.

3. Una máquina como se reivindica en la cláusula 2 CARACTERIZADA PORQUE el tubo continuo tiene una sección en corte de forma esencialmente rectangular.

4. Una máquina como se reivindica en cualesquiera de las cláusulas 1 a 3 CARACTERIZADA PORQUE además comprende medios para ajustar el ángulo en el cual la cinta sale de la guía de la cinta.

5. Una máquina como se reivindica en cualesquiera de las cláusulas 1 a 3 CARACTERIZADA PORQUE además comprende:

una porción delantera que tiene medios para suministrar potencia:

una porción intermedia conectada en rotación con la porción delantera, donde la conexión en rotación está dispuesta para permitir la transmisión de potencia desde la porción delantera a la porción intermedia durante la rotación; y

medios de bisagras para conectar con bisagras al marco con la porción intermedia;

En donde, en funcionamiento, la porción intermedia y el marco giran juntos respecto de la porción delantera y en donde las porciones delantera e intermedia pueden pivotar alrededor del medio con bisagra respecto de la porción trasera para permitir que la máquina pueda ser levantada desde un conducto horizontal a través y hacia afuera de un pozo de registro.

6. Una máquina como se reivindica en la cláusula 5 CARACTERIZADA PORQUE la porción delantera contiene componentes de control.

7. Una máquina como se reivindica en las cláusulas 5 o 6 CARACTERIZADA PORQUE los medios con bisagra comprenden una junta universal.

8. Una máquina alargada para enrollar un tubo bobinado en forma helicoidal dentro de un conducto a partir de una cinta que tiene formaciones de conexión complementarias que se extienden a lo largo de porciones opuestas en los bordes de la misma y que están adaptadas para encajar cuando se bobina la cinta en forma helicoidal, la máquina CARACTERIZADA PORQUE comprende:

una porción delantera que tiene medios para suministrar potencia:

una porción intermedia conectada en la rotación con la porción delantera, donde la conexión en la rotación está dispuesta para permitir la transmisión de potencia desde la porción delantera a la porción intermedia durante la rotación;

una porción trasera que tiene un marco que soporta a al menos tres rodillos guía espaciados alrededor de una circunferencia adaptados para apoyarse contra la periferia interna del tubo que se está bobinando, y un medio de rodillos para impulsar la cinta para impulsar la cinta alrededor del exterior de los rodillos de modo de hacer que las porciones de los bordes adyacentes de las vueltas adyacentes de la cinta se encajen; y

medios de bisagras para conectar con bisagras la porción trasera con la porción intermedia;

en donde, en funcionamiento, las porciones intermedias y trasera giran juntas respecto de la porción delantera y en donde las porciones delantera e intermedia pueden pivotar alrededor de los medios con bisagra respecto de la porción trasera para permitir que la máquina sea levantada desde un conducto horizontal a través y hacia fuera de un pozo de registro.

9. Una máquina como se reivindica en la cláusula 8 CARACTERIZADA PORQUE la porción delantera contiene componentes de control.

10. Una máquina como se reivindica en las cláusulas 8 o 9 CARACTERIZADA PORQUE los medios con bisagra comprenden una junta universal.

11. Una máquina como se reivindica en cualesquiera de las cláusulas 8, 9 o 10 CARACTERIZADA PORQUE además comprende una guía de cinta alargada para guiar a la cinta en forma axial a través de la máquina desde una posición de entrada adyacente al extremo posterior de la máquina hacia una posición de salida adyacente a uno de los al menos tres rodillos guía y enfrentando hacia el trayecto helicoidal;

En donde los medios de rodillo de impulsión de la cinta están montados al extremo posterior del marco adyacente a la posición de entrada y, en funcionamiento, los medios de rodillo de impulsión de la cinta impulsan a la cinta a través de la guía de la cinta en compresión.

12. Una máquina como se reivindica en la cláusula 11 CARACTERIZADA PORQUE el tubo continuo tiene una sección de corte de forma esencialmente rectangular.

13. Una máquina como se reivindica en cualesquiera de las cláusulas 11 o 12 CARACTERIZADA PORQUE además comprende medios para ajustar el ángulo en el que la cinta sale de la guía de la cinta.
14. Una máquina esencialmente como se la describe precedentemente con referencia y como se la ilustra en las figuras 3, 4 , 5 y 5a.
15. Una máquina esencialmente como se la describe precedentemente con referencia y como se la ilustra en las figuras 6 y 7.

**MÁQUINA PARA ENROLLAR TUBOS DE DIÁMETRO PEQUEÑO IN SITU****RESUMEN**

Una máquina alargada 10 para enrollar un tubo bobinado de manera helicoidal a partir de una cinta 12. La máquina comprende un marco 20 que tiene al menos tres rodillos guía espaciados sobre una circunferencia adaptados para apoyarse contra la periferia interna del tubo que se está bobinando; una guía de cinta alargada 40 para guiar a la cinta en forma axial a través de la máquina desde una posición de entrada adyacente al extremo posterior de la máquina hacia una posición de salida 44 adyacente a uno de los tres rodillos guía; un montaje de rodillos tensores de impulsión de cinta 24, montado al extremo posterior del marco adyacente a la posición de entrada, para impulsar a la cinta 12 a través de la guía de la cinta 40 en compresión alrededor del exterior de los rodillos de modo de seguir un trayecto helicoidal y hacer que las porciones de bordes adyacentes de las vueltas adyacentes de la cinta 12 se encajen y un motor 26 para impulsar a los medios de rodillos de impulsión de cinta 24, por medio de los cuales, en funcionamiento, los medios de rodillos de impulsión de cinta 24 impulsan la cinta 12 de manera continua a través de la guía de la cinta 40 hasta una posición adyacente a la última vuelta bobinada para de esa manera formar un tubo helicoidal.

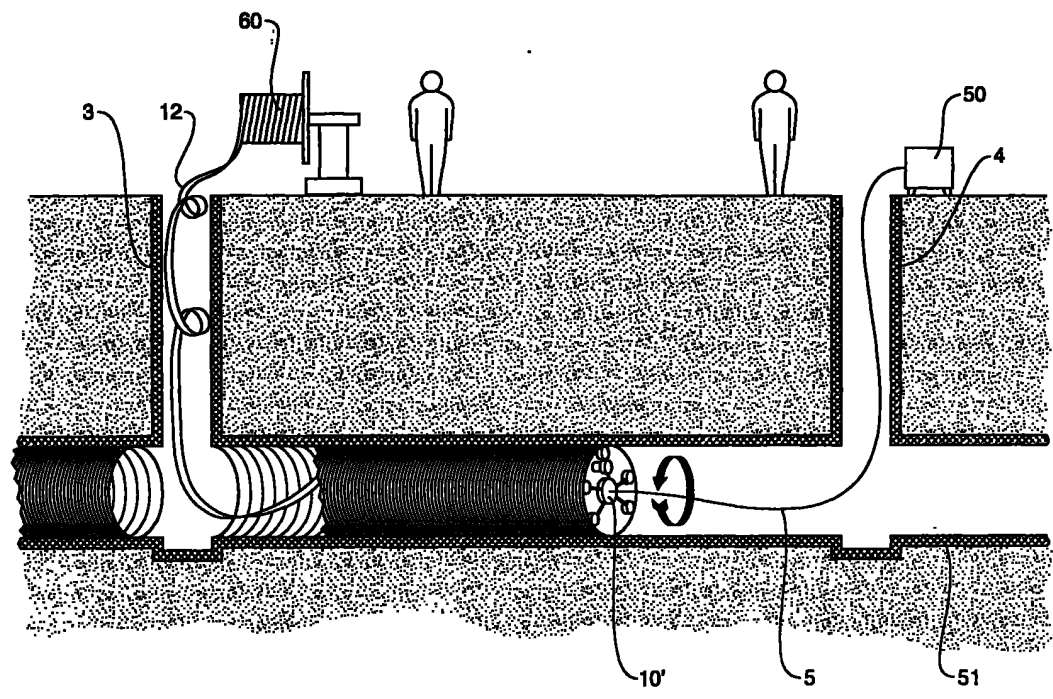


Fig 1

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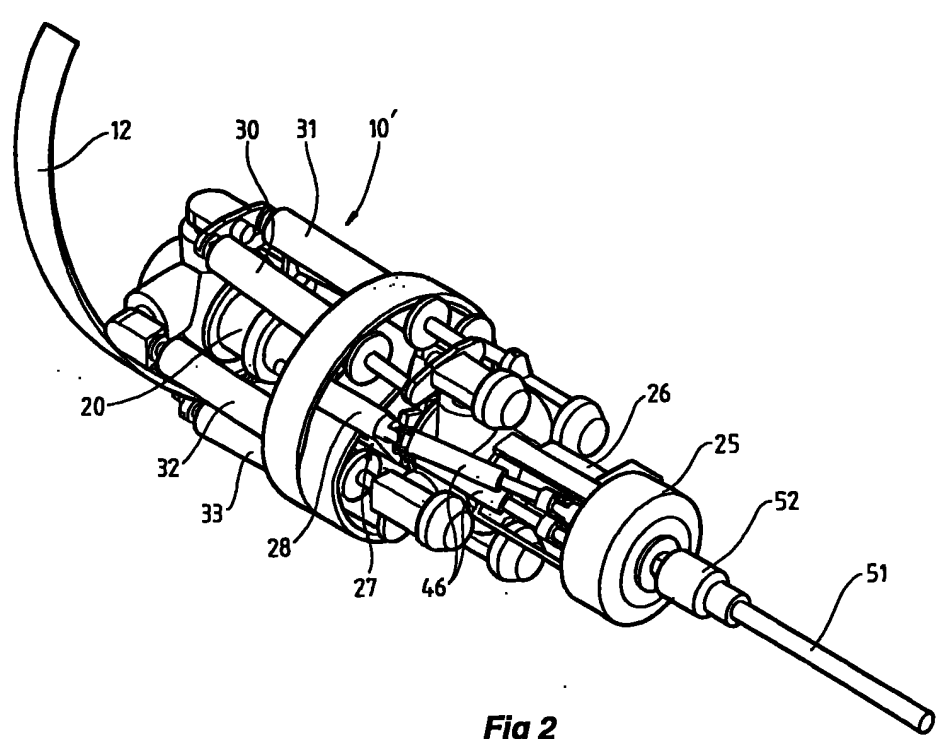
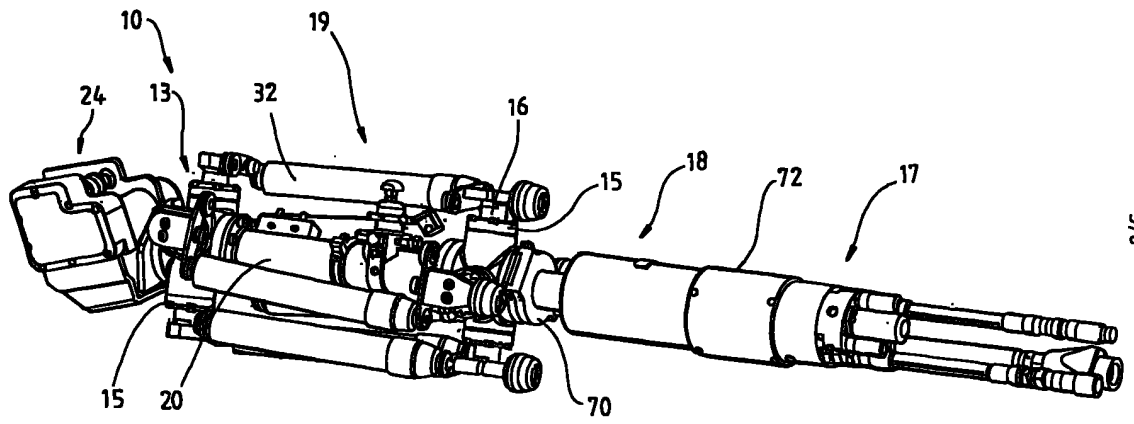


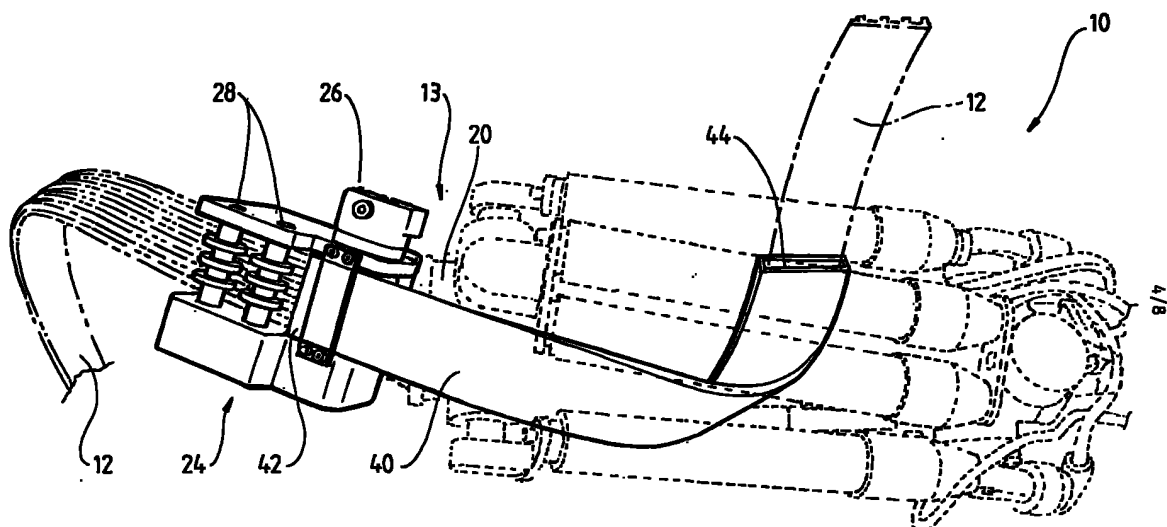
**Fig 2**



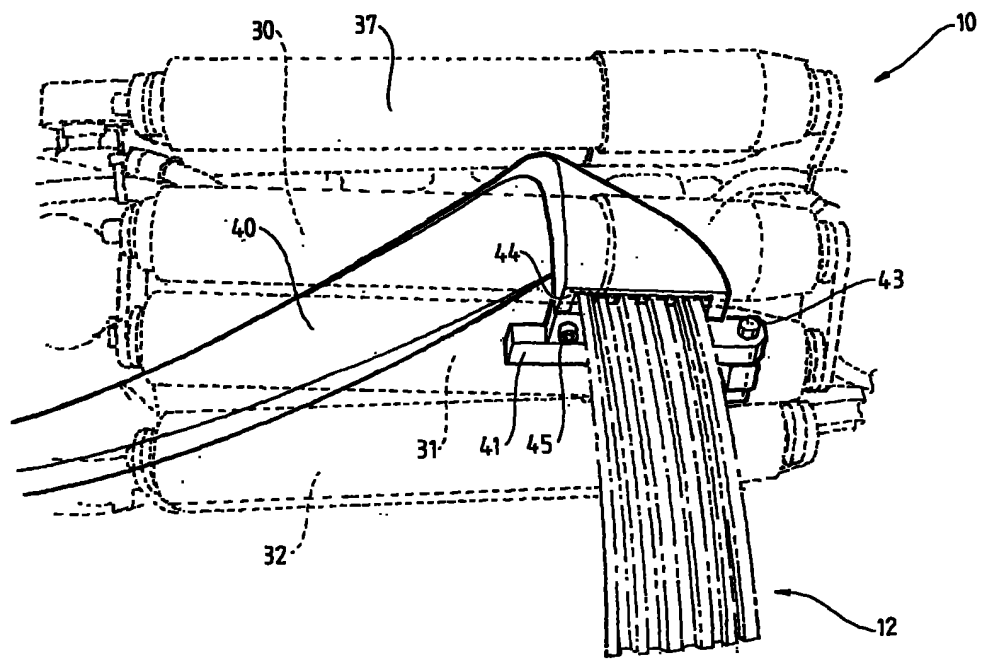
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**Fig 3**

*[Handwritten mark]*

**Fig 4**

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Fig 5

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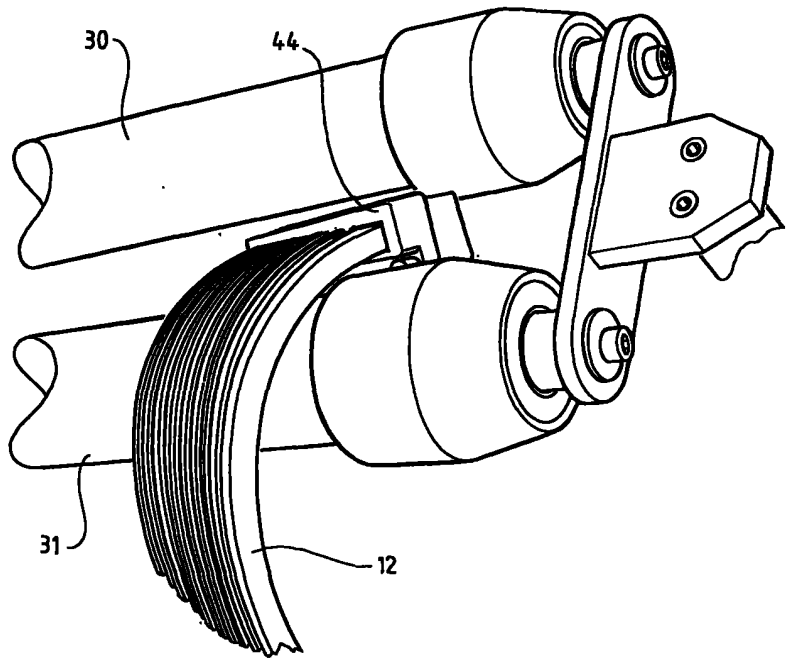


**Fig 5a**

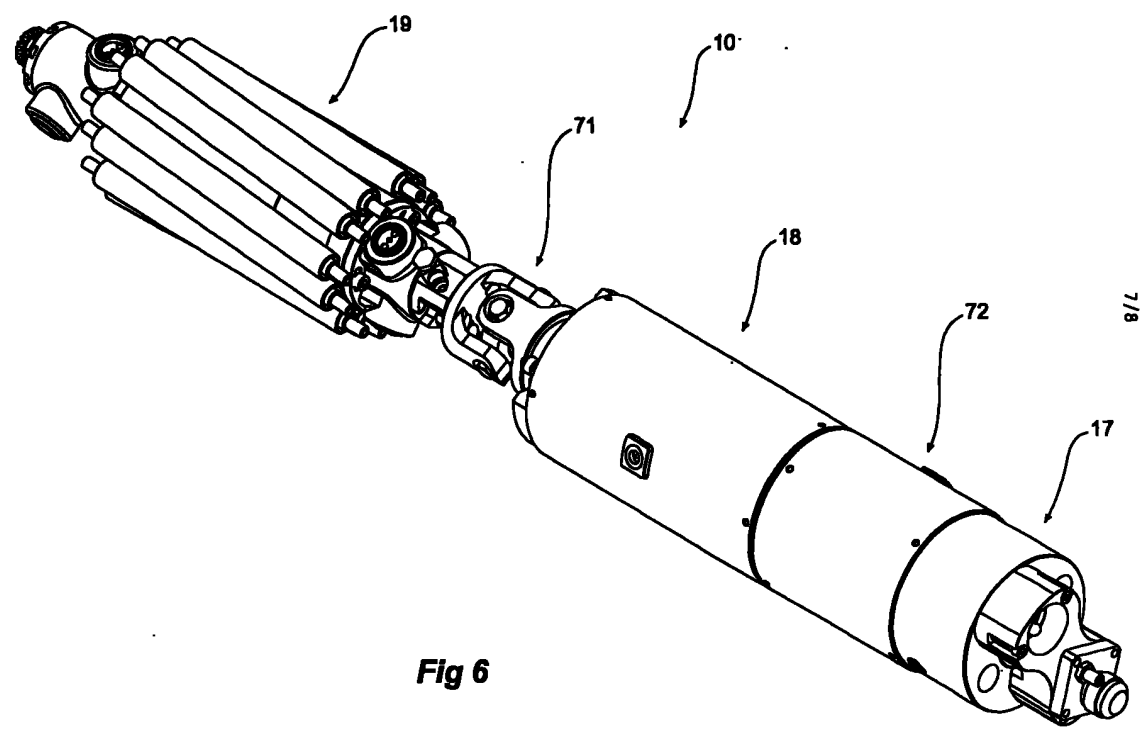
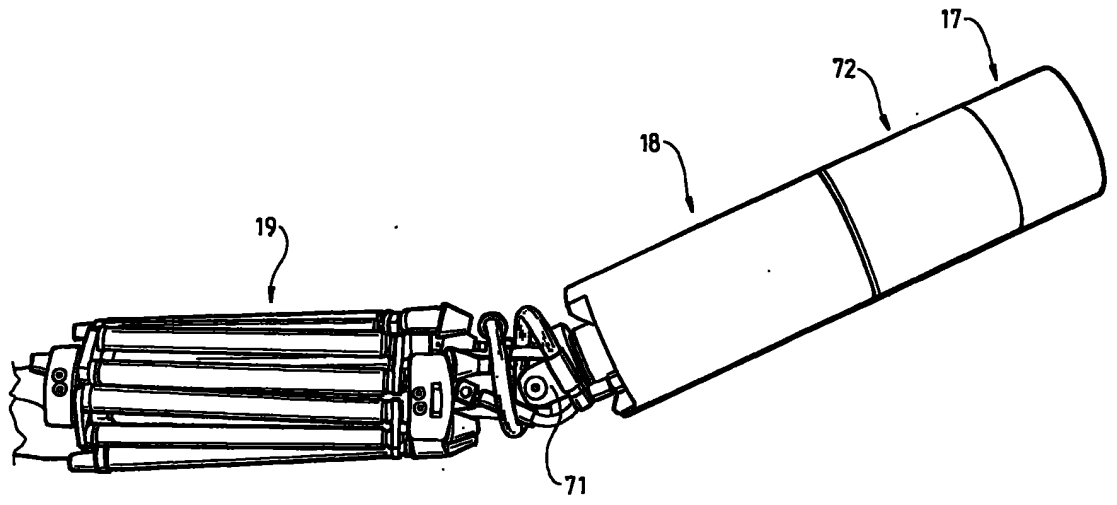


Fig 6

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Fig 7

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# REQUISITOS NECESARIOS PARA PRESENTAR TRAMITE

SEDE ADMINISTRATIVA Y COMERCIAL  
Radicación: 03112931 00000000  
Fecha (HORA): 2003-12-29 16:44:15  
Tramite: 011 PCT PATENTE 179 PAGO: PAGO 111 PCT PATENTE  
Dependencia: 2000 DIVISION DE MARCAS Y DISEÑOS

|                                                                                         | USUARIO | RADICADOR |
|-----------------------------------------------------------------------------------------|---------|-----------|
| <b>PATENTE DE INVENCION</b> <input checked="" type="checkbox"/>                         | ( )     | ( )       |
| - Indicación de que se solicita la concesión de una patente.                            | ( )     | ( )       |
| - Datos de identificación del solicitante o de la persona que se presenta la solicitud. | ( )     | ( )       |
| - Descripción de la invención.                                                          | ( )     | ( )       |
| - Dibujos de ser estos pertinentes.                                                     | ( )     | ( )       |
| - Comprobante de Pago de las tasas establecidas.                                        | ( )     | ( )       |

COMPLETA ☒ INCOMPLETA ( )

## DISEÑO INDUSTRIAL ( )

|                                                                                                              |     |     |
|--------------------------------------------------------------------------------------------------------------|-----|-----|
| - Indicación de que se solicita el registro de Diseño Industrial                                             | ( ) | ( ) |
| - Datos de identificación del solicitante o de la persona que presenta la solicitud.                         | ( ) | ( ) |
| - Representación gráfica y fotográfica del Diseño Industrial o muestra del Material que incorpora el diseño. | ( ) | ( ) |
| - Comprobante de pago de las tasas establecidas                                                              | ( ) | ( ) |

COMPLETA ( ) INCOMPLETA ( )

## ESQUEMA DE TRAZADO ( )

|                                                                                      |     |     |
|--------------------------------------------------------------------------------------|-----|-----|
| - Indicación de que solicita el registro de un Esquema de trazado.                   | ( ) | ( ) |
| - Datos de identificación del solicitante o de la persona que presenta la solicitud. | ( ) | ( ) |
| - Representación gráfica del esquema de trazado                                      | ( ) | ( ) |
| - Comprobante de pago de las tasas establecidas.                                     | ( ) | ( ) |

COMPLETA ( ) INCOMPLETA ( )

Firma Responsable:



Fecha:



Folio 78

2020  
Bogotá DC

Doctor(a)  
DILIA MARIA RODRIGUEZ D'ALEMAN  
Apoderado(a)  
RIB LOC AUSTRALIA PTY LTD.

|                    |                                   |                         |
|--------------------|-----------------------------------|-------------------------|
| <b>REFERENCIA:</b> | <b>Radicación No.</b>             | <b>03-112933</b>        |
|                    | <b>Solicitud Internacional</b>    | <b>PCT/AU2002/00736</b> |
|                    | <b>Fecha inicio fase nacional</b> | <b>08/01/2004</b>       |
|                    | <b>Trámite</b>                    | <b>011</b>              |
|                    | <b>Evento</b>                     | <b>379</b>              |
|                    | <b>Actuación</b>                  | <b>416</b>              |
|                    | <b>Oficio No.</b>                 | <b>98</b>               |
|                    | <b>Folios</b>                     | <b>001</b>              |

Teniendo en cuenta que la solicitud de privilegio de patente que se tramita bajo el expediente indicado en la referencia, reúne los requisitos de forma establecidos en la Decisión 486 de la Comisión de la Comunidad Andina, el Tratado de Cooperación en Materia de Patentes (PCT), el Reglamento y la Circular Unica de la Superintendencia de Industria y Comercio, se envía el extracto de la solicitud a la Oficina de Comunicaciones para efecto de su publicación en la Gaceta de Propiedad Industrial.

Cúmplase  
Dado en Bogotá DC,

29 ENE. 2004

  
**ALIX CARMENZA CÉSPEDES DE VERGEL**  
Jefe de la División de Nuevas Creaciones

202053