

CAVELIER

ABOGADOS

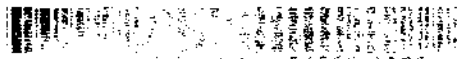
www.cavelier.com
cavelier@cavelier.com

EDIFICIO SISKI
CARRERA 4 No. 72 - 35
BOGOTA 8, COLOMBIA

86
87
Teléfono: (57-1) 347 3611
Telefax: (57-1) 211 8650
(57-1) 540 0860
Fax in U.S.A.: (1-305) 381 9660

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

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



Trámite : 011
Evento : 378
Actuación : 538

Referencia : Expediente No. 06019924
Asunto : SOLICITUD DE PATENTE PARA CLAVO MEDULAR
Solicitante : **SYNTHE S GMBH**
Clase : A61B 017/072
Publicada en : La Gaceta No. 579 Del 31 de agosto de 2007
Fecha de Solicitud: 28 de febrero de 2006

1. Yo, Emilio FERRERO, identificado como aparece al pie de mi firma, actuando como apoderado en el asunto de la referencia, atentamente, solicito se efectúe el examen de patentabilidad de la solicitud en referencia presentada de acuerdo con el Capítulo I del PCT y según lo establecido en el artículo 44 de la Decisión 486 de la Comisión de la Comunidad Andina. Para tal efecto presento junto con este escrito el recibo por valor de \$ 420.000.00 correspondiente a la tasa fijada.

2. Ruego atentamente a la Señora Jefe se sirva ordenar que se anexe este recibo para que se efectúe dicho examen y se continúe con el trámite de la solicitud.

Señora Jefe,

EMILIO FERRERO
T.P.A. No. 31.929

COLO-15153-841-007-8
MVN\SCT\ID-120186\WPC15153
No. M-2008-120186\MVN

NIT 860.041.367-3

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NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 7 - 98,236
FECHA : DICIEMBRE 3 DE 2007

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
Dep. 2020 NUECREACIONE
Eve: 379 FASENACIONALI
Folios: 4

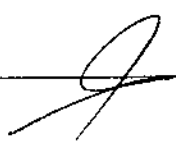
***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	Nº. PAGO	FECHA PGO	Vr. PAGO
ELIER ABOGADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	48625361	03/12/2007	60,286,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	93 TASA ANUAL MANTENIMIENTO MODELO D	149,000.00
TOTAL :			\$ 149,000.00

SON: CIENTO CUARENTA Y NUEVE MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL ASUNTO No.

Ab 15153-841-007-8

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89

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 900176089-2

Dep. 2020 NUECREACION
Eve: 379 FASENACIONALII
Folios: 4

CERTIFICACION DE EXCEDENTE : 08 - 16,581
FECHA : FEBRERO 25 DE 2008

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	Nº. PAGO	FECHA PGO	Vr. PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO DE BOGOTA	062754307	2808482	25/02/2008	40,274,000.00

***** CONCEPTO *****

CANT.	RENTISTADO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-09	OTROS SERVICIOS DE PROPIEDAD I	
		99 OTROS SERVICIOS ADMINISTRATIVOS	6,000.00
		TOTAL :	\$ 6,000.00

SON: SEIS MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No.

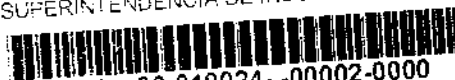
15153-841-007-B

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 08 - 11,278
FECHA : FEBRERO 11 DE 2008

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 06-019924-00002-0000

Dep. 2020 NUECREACION
Eve: 379 FASENACIONALII
Folios: 4

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO DE BOGOTA	062754387	2678193	11/02/2008	51,814,500.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-04	PRESENTACION DE OBSERVACIONES	
		12 MARCAS Y LEMAS COMERCIALES	266,000.00
		TOTAL :	\$ 266,000.00

SON: DOSCIENTOS SESENTA Y SEIS MIL PESOS

RESPONSABLE :



RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

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Pdo 15153-841-0078

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DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 06-19924

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

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **579** DE

FECHA **31 DE AGOSTO DE 2007** EL TÉRMINO HÁBIL SEÑALADO POR LA

LEY EXPIRA EL **28 DE NOVIEMBRE DE 2007**

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

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

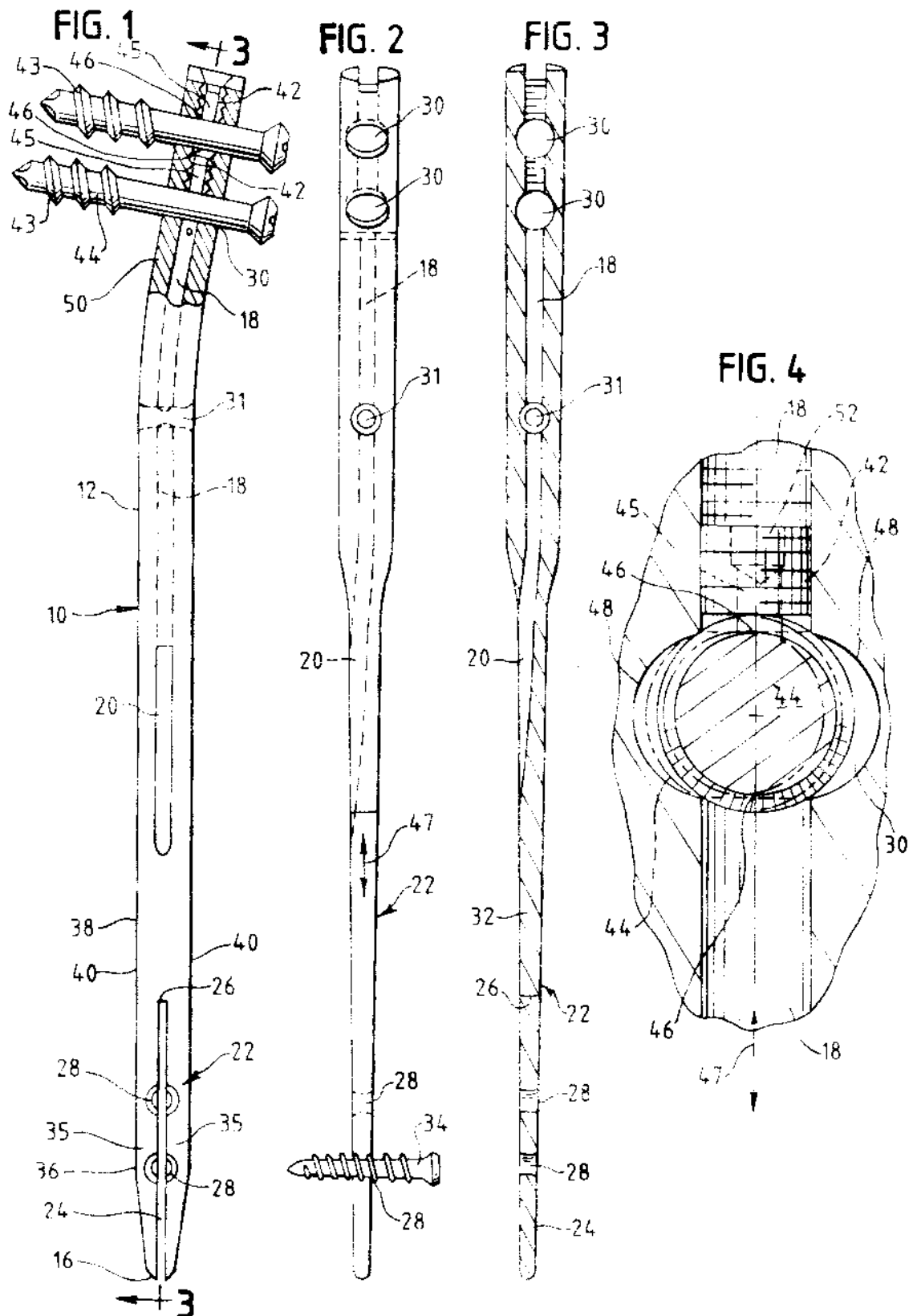
SI _____

NO X

U.S. Patent

Sep. 26, 2000

6,123,708



The purpose of such a latter shape, when present, is that the transversely enlarged "paddle" portion of the rod can aid locking in the distal humeral canal in the preferred situation where the rod or nail is for the humerus. The narrower "neck" portion can aid in preventing fracture of the humeral shaft during insertion and afterward, since it may reside in a portion of the medulla of the humerus which is narrower than other portions, so that the narrowed neck portion resides therein without exerting much outward pressure on the bone. Also, the narrowed neck portion provides added resistance to that portion of the rod which is distal to the narrowed neck portion, including the first, wider portion discussed above.

It is also preferred to at least one of the transverse holes to intersect the central bore in the proximal rod portion. A set screw may occupy the bore in a position to retain a bone screw extending through the above transverse hole that intersects the central bore. This may be provided as a factory pre-set or preloaded set screw to facilitate the surgical procedure.

Also, preferably, such a set screw may carry an axial aperture, to permit a guidewire to extend completely through the central bore despite the presence of the set screw. Thus, the proximal end may be installed by a guidewire technique, as is frequently a surgical desire, while at the same time the set screw may be pre-placed and ready to secure a transverse screw for retaining the rod in the desired position in the humerus or other long bone.

It is also preferred for at least one of the transverse holes which intersect the central bore of the nail to define on each side of the central bore axially spaced first wall sections, which are separated by and connected with circumferentially spaced second wall sections. These sections are proportioned to permit threaded engagement of a screw in the transverse hole by the first wall sections, while the screw is disengaged and spaced from the second sections. Typically, the first wall sections may be almost flat or slightly concave, and the second sections may be more concave, so that the transverse hole forms a substantial oval to avoid second section engagement with a transverse screw extending straight through the hole. This arrangement can be used to allow the transverse screw to rotate about 5 to 30 degrees in each horizontal direction, preferably about 15 degrees, specifically in a horizontal plane which is essentially perpendicular to the longitudinal axis of the rod. At the same time, the screw cannot rotate or otherwise move in a direction transverse to this horizontal plane, but it can rotate about its own axis. Thus, a nail which can carry transverse screws with this characteristic can better accommodate various bone geometries pertaining, for example, to the head of the humerus, when compared with a retention screw in a transverse hole that lacks this characteristic.

The set screw carried in the bore can then be used to reliably hold such a transverse screw in a desired rigid position, once the properly adjusted position of the transverse bore retention screw has been achieved.

DESCRIPTION OF THE DRAWINGS

Referring to the drawings, FIG. 1 is an elevational view, taken partially in longitudinal section, of a bone fixation nail or rod in accordance with this invention.

FIG. 2 is an elevational view of the nail or rod of FIG. 1 rotated 90 degrees about its axis.

FIG. 3 is a longitudinal sectional view of the nail or rod from the view of FIG. 2, and

FIG. 4 is an enlarged, detailed, sectional view of a proximal hole for transverse bone screws from the nail

DESCRIPTION OF SPECIFIC EMBODIMENT

Referring to the drawings, bone fixation nail or rod 10 comprises an elongated nail body 12 having a proximal end 14 and a distal end 16. Central bore 18 extends through the nail body from proximal end 14, through a proximal portion of the nail. Bore 18 terminates at an open side groove 20 spaced between the ends of nail 10, where, in this embodiment, the bore opens to the exterior through slot groove 20 at said point.

Adjacent to distal end 16, nail 10 defines a transversely flattened distal portion 22, as particularly seen in FIGS. 2 and 3, compared with FIG. 1. An open slot 24 extends centrally and longitudinally from distal end 16 across the distal portion 22 to an inner slot end 26, which is spaced between ends 14, 16 of the nail.

Nail 10 also carries a plurality of transverse holes 28, 30 extending therethrough. Transverse holes 28 are positioned adjacent to the distal end 16 of the nail, while transverse holes 30 are positioned generally perpendicular to holes 28, adjacent to proximal end 14.

One or more central transverse holes 31 may also be provided.

Central bore 18 and particularly the side aperture or groove 20 that connects with central bore 18 is separated by a partition portion 32 from open communication with slot 24. Partition portion 32 is part of the rod itself, which is typically made of a known, surgically implantable metal alloy. However, if desired, central bore 20 may connect with slot 24 so that a guidewire can pass axially through the entire length of nail 10.

If desired, and as shown in FIG. 2, at least one of transverse holes 28 may carry a tapered screw 34 such as a cortical screw for locking secureance of the nail 10 in the bone. In other transverse holes 28 may carry such a screw 34 in those circumstances where two of such holes are present. Thus, nail 10 may be inserted deep into the marrow or medulla of the bone, and be secured there at its distal tip with cortical locking or tapered cortical locking screws 34, or non-tapered, cylindrical screws if desired, which screws pass transversely through the bone and slot 24 of nail 10. As previously discussed, tapered screws 34 may be used to spread or distract legs 35 as they advance as desired by the surgeon.

Furthermore, if desired, a first portion 36 of the transversely flattened distal portion 22 (as in FIG. 1) may have a width that is greater than the width of a second portion 38 of the transversely flattened distal portion 22, with first portion 36 being nearer to distal end 16 than second portion 38. The advantage of this, as described above, provides resilience to the distal end portion of the nail, permitting better fitting of the nail into the humerus, for which this particular nail is designed, or another bone.

Side edges 40 of the transversely flattened distal portion 22 are preferably smooth and also arcuate to accommodate the varying widths 36, 38 of flattened portion 22, if present.

As is shown herein, transverse holes 30 intersect central bore 18 adjacent to proximal end 14 of nail 10. Set screws 42 each occupy a threaded portion of bore 18, being positioned to retain a cancellous bone screw 44 or the like, having threads 43 along part of their lengths. Each bone screw 44 extends through one of transverse holes 30. Each set screw 42 has an axial aperture 45 to permit a guidewire to extend completely through central bore 18 as previously described, to facilitate emplacement of nail 10 in the bone.

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This nail or rod 10 can be secured to the bone which it occupies both adjacent to its proximal end 14 and its distal end 16 by the use of transverse screws.

It is further preferred for the transverse holes 30, which intersect central bore 18, to define on each side of central bore 18 (as shown in FIG. 4), a pair of axially spaced first wall sections 46 spaced along the longitudinal axis 47 of rod 10. First wall sections 46 of each hole 30 are separated by and connected with a pair of circumferentially spaced second wall sections 48. First wall sections 46 define transverse ridges which may engage threads of screw 44, or, as shown, there may be no threaded engagement, but screw 44 may merely be clamped with set screw 42 for retention. The circumferentially spaced second wall sections 48 are generally disengaged from screw 44, since the entire aperture formed by the respective wall sections 46, 48 is of a generally oval shape. Because of this, it becomes possible for screws 44 in holes 30 to rotate about a plane which is essentially perpendicular to the longitudinal axis 47 of nail 10, as shown by the dotted line position of screw 44 in FIG. 4. Because of the slightly canted portion 50 of nail 10 adjacent to proximal end 14, this plane will not be exactly horizontal from the viewpoint of FIG. 1. Despite this, screw 44 cannot be rotated up and down, parallel to axis 47. Screws 44 are shown oversized relative to holes 30, being actually removable from holes 30.

However, as previously described, this capability to (essentially) horizontally rotate screws 44 as nail 10 is being employed facilitates the attachment and secureance of nail 10 within and to the bone, such as the humerus. Then, when screws 44 have been properly secured, set screws 42 may be rotated and advanced to provide added security and rigidity to the entire system by pressing against screws 44 and retaining them in rigid manner relative to nail 10. Set screws 30 may be of a common type that are advanceable with an Allen wrench, having a recessed, hexagonal space 52 for receiving such a wrench. Typically, until secured by set screws 42, cancellous bone screws 44 may be rotated about 15 degrees on either side, while being firmly retained against any significant vertical rotation (i.e., parallel to nail longitudinal axis 47), until set screw 42 secures them rigidly relative to nail 10.

The above has been offered for illustrative purposes only, and is not intended to limit the scope of the invention of this application, which is as defined in the claims below.

That which is defined:

1. A nail for axial insertion into a bone for support thereof, which comprises:

an elongated nail body having a proximal end and a distal end; a central bore extending through said nail body from the proximal end along a proximal portion of said nail and terminating at a point spaced between said ends; said nail also defining a transversely flattened distal portion extending proximally from said distal end, and an open slot extending centrally and longitudinally from said distal end along said distal portion to an inner slot end spaced between said proximal and distal ends, said nail body defining a plurality of transverse holes extending therethrough;

2. The nail of claim 1 in which said central bore terminates at an aperture in the side wall of said nail;

3. The nail of claim 1 in which said central bore and said open slot are separated by a proximal portion preventing their communication with each other;

4. The nail of claim 1 in which at least one of said transverse holes is located adjacent to said proximal end and carries a tapered screw extending through said open slot for

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5. The nail of claim 1 in which a first portion of said transversely flattened distal portion has a width that is greater than the width of a second portion of said transversely flattened distal portion, said first portion being nearer to the distal end than said second portion;

6. The nail of claim 1 in which said distal portion has opposed smooth side edges;

7. The nail of claim 1 in which at least one of said transverse holes intersects said central bore and a set screw occupies said bore in a position to retain a bone screw extending through said one transverse hole, said set screw having an axial aperture to permit a guidewire to extend completely through said central bore;

8. The nail of claim 1 in which at least one of said transverse holes intersects said central bore and said bore defining on each side of said central bore, axially spaced first wall sections separated by and connected with circumferentially spaced second wall sections, said first wall sections being proportioned to permit threaded engagement of a screw in said transverse hole while the screw is disengaged from said second wall sections, allowing said screw to rotate through an arc in a plane essentially perpendicular to the longitudinal axis of said nail;

9. The nail of claim 8 in which said at least one of said transverse holes has a set screw that occupies said bore in a position to retain a bone screw extending through said one transverse hole, said set screw having an axial aperture to permit a guidewire to extend completely through said central bore;

10. The nail of claim 9 in which at least one of said transverse holes is located adjacent to said distal end and carries a tapered screw extending through said open slot for locking secureance of the nail in a bone;

11. A nail for axial insertion into a bone for support thereof, which comprises:

an elongated nail body having a proximal end and a distal end; a central bore extending through said nail body from the proximal end along a proximal portion of said nail and terminating at a point spaced between said ends at an aperture in the side wall of said nail; said nail also defining a transversely flattened distal portion extending proximally from said distal end, and an open slot extending centrally and longitudinally from said distal end along said distal portion to an inner slot end spaced between said proximal and distal ends, said nail body defining a plurality of transverse holes extending therethrough, a first portion of said transversely flattened distal portion having a width that is greater than the width of a second portion of said transversely flattened distal portion, said first portion being nearer to the distal end than said second portion;

12. The nail of claim 11 in which said distal portion has opposed smooth, arcuate side edges;

13. The nail of claim 12 in which at least one of said transverse holes is located adjacent to said distal end and at least one of said transverse holes is located adjacent to said proximal end and intersecting said central bore, and a set screw occupies said central bore in a position to retain a bone screw extending through said transverse hole adjacent to said proximal end, said set screw having an axial aperture to permit a guidewire to extend completely through said central bore;

14. The nail of claim 13 in which said transverse hole adjacent to the proximal end defines on each side of said central bore axially spaced first wall sections separated by and connected with circumferentially spaced second wall

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCION DE NUEVAS CREACIONES

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Bogotá, D.C.

Abogado
EMILIO FERRERO
Apoderado

ASUNTO	Radicación	06 – 19924
	Trámite	011
	Evento	378
	Actuación	519 13:45
	Oficio	
	Folios	006

Patente de Invención	☒	Patente de Modelo de Utilidad	☐
Vía Nacional	☐		
Vía PCT (fase nacional)	☒	Cap. I	☒
		Cap. II	☐

No. Sol. Internacional CH2003/000591

Fecha de Presentación Internacional 29/08/2003

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

1. Documentos estudiados

- | | | | |
|------|--------------------------|--------|---------|
| 1.1. | <u>Descripción:</u> | Folios | 23 a 35 |
| 1.2. | <u>Reivindicaciones:</u> | Folios | 54 a 56 |
| 1.3. | <u>Dibujos:</u> | Folios | 17 a 22 |

2. Objeto de la invención

Título de la solicitud: "CLAVO MEDULAR."

El problema planteado en esta solicitud se refiere a dos inconvenientes; uno es que se debilita considerablemente la rigidez de la punta del clavo medular, y por otra parte es posible en todo momento que el clavo medular vuelva a despiazarse axialmente en la dirección opuesta al tornillo de acerrojamiento.