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

Trámite :011
Evento :379
Actuación :538

Referencia : Expediente No. 06.096.398
Asunto : SOLICITUD DE PATENTE PARA **TORNILLO ARTICULADO PARA HUESO**
Solicitante : SYNTHES GMBH
Clase : A61B 017/086
Publicada en : La Gaceta No.**575** Del 30 de abril de 2007.
Fecha de Solicitud : 25 de septiembre 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 $ 404.000.00, que corresponde a la tasa fijada según lo dispuesto en la resolución No. 36155 de 28 de diciembre de 2006.

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,

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SCT\MVN\ID-109191\WPC15153

US006475242B1

(12) **United States Patent**
Bramlet

(10) **Patent No.: US 6,475,242 B1**
(45) **Date of Patent: Nov. 5, 2002**

(54) **ARTHROPLASTY JOINT ASSEMBLY**

(76) Inventor: **Dale G. Bramlet**, 2044 Brightwaters Blvd., NE., St. Petersburg, FL (US) 33704-3010

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/236,627**

(22) Filed: **Jan. 26, 1999**

Related U.S. Application Data

(62) Division of application No. 08/615,022, filed on Mar. 13, 1996, now Pat. No. 5,984,970.

(51) **Int. Cl.**[7] **A61F 2/42**
(52) **U.S. Cl.** **623/21.11**; 623/21.15; 623/23.44
(58) **Field of Search** 623/21, 22, 21.11, 623/21.12, 21.13, 21.14, 21.15–21.19

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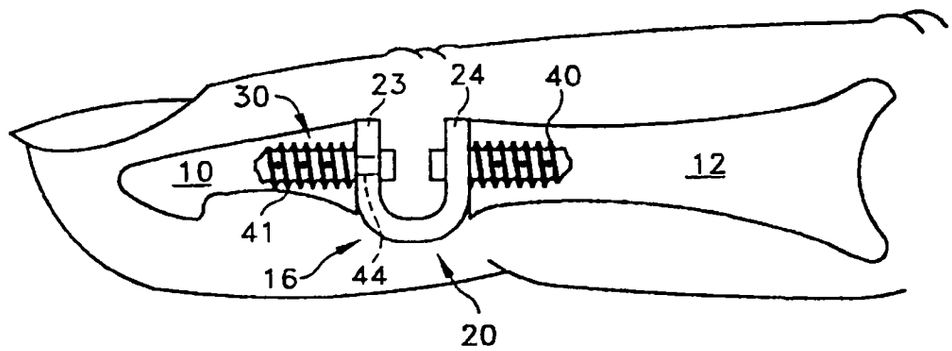
(57) **ABSTRACT**

An arthroplasty joint assembly for medically and articulately interconnecting first and second opposed end regions of lengthwise adjacent first and second bones. The artificial joint assembly includes a first assembly including external threading extending lengthwise from a generally pointed end of the first assembly for anchoring the first assembly within a cavity of the first bone such that an opposite end of the first assembly extends toward the second bone. The artificial joint assembly also includes a second assembly having external threading extending lengthwise from a generally pointed end of the second assembly for anchoring the second assembly within a cavity in the second bone and such that an opposite end of the second assembly extends toward the first bone. The artificial joint assembly further includes a connector operably associated with and pivotally interconnecting the first and second assemblies to permit the first and second bones anchored thereto to articulately flex relative to each other while maintaining the first and second bones in relationship to each other.

18 Claims, 42 Drawing Sheets



further includes a retainer apparatus **50**. As shown, the retainer apparatus **50** preferably comprises an annular insert **52** arranged axially along and in combination with the internal threading of bore **46**. Insert **52** is formed from a material that is biocompatible with the human and bone tissues and is preferably chosen from a class including: nylon or ultra-high molecular weight polyethylene.

FIG. **18** shows an alternative form of a retainer apparatus **50'** that can be used in combination with the member **41** of each screw or fastener **30, 40**. The alternative retainer apparatus **50'** comprises an insert **52'** arranged axially along and in combination with the internal threading of bore **46**. Insert **52'** is formed from a class of materials similar to that chosen for insert **52** and described above.

Referring to FIGS. **4, 5** and **7**, the illustrated embodiment of the joint assembly **16** further comprises a pair of fasteners **60**. In this embodiment of the invention, the fasteners **60** serve to fixedly interconnect the joint end of each screw **30, 40** to a respective leg portions **23, 24** of the connector **20**.

As shown in FIGS. **19** and **20**, each fastener **60** includes a threaded shank portion **62** and an enlarged head portion **64**. The external threading on the shank portion **62** of fastener **60** has a pitch that corresponds to the pitch of the internal threading extending along at least a portion of the bore **46** defined by member **41** of each screw **30, 40**. In the embodiment of the fastener shown, the diameter of the shank portion **62** is specifically sized to fit endwise through the bore **26** defined in each leg portion **23, 24** of the connector **20**. The head portion **64** of each fastener **60** is sized to prevent passage past the inner surface **28** of the connector **20**. The head portion **64** of each connector **60** is furthermore configured to releasably accommodate a driving tool capable of imparting turning movements to the fastener **60**. In the illustrated embodiment, the head portion **64** of each connector **60** defines a blind socket **66** that is configured to releasably accommodate a driving tool capable of imparting turning movement to the fastener **60**. In a most preferred form, the blind socket **66** of fastener **60** has a hexagonal cross-sectional configuration although other like configurations would equally suffice.

To facilitate the distribution of forces and stresses across a broad area, when the connector **20** is fastened to the screws **30** and **40**, the joint assembly **16** of the present invention preferably further includes a thrust washer **70** as shown in FIGS. **22** through **25**. The thrust washer **70** includes an apertured plate-like member **71** defining a generally centralized bore **72** and first and second generally parallel and planar surfaces **73** and **74**. Member **71** is configured to generally correspond to the shape of recess **29** provided on the interior surface **28** of each leg portion **23, 24** of connector **20**. Notably, bore **72** in washer **70** is sized to allow the threaded shank portion **62** of fastener **60** to pass endwise therethrough while preventing the head portion **64** from moving therepast. As will be appreciated, when the fastener **60** is tightened to draw the respective screw **30, 40** and respective leg portions **23, 24** of connector **20** into fixed relationship relative to each other, the head portion **64** of fastener **60** acts against the washer **70** which serves to evenly distribute forces and stresses across a broader area thereby lessening the likelihood of fatigue failure of the connector **20** in the region of the fastener **60**.

Returning to FIG. **3**, after opposing end regions of the bones **10** and **12** have been surgically severed, the joint assembly **16** is implanted to replace and act as the distal interphalangeal joint. To begin, a probe (not illustrated) is inserted into the exposed medullary cavity of the bone to localize a suitable longitudinal axis for insertion of a respective screw **30, 40**. A recess is then drilled in the exposed medullary cavity. Screws **30, 40** similar to that illustrated in FIGS. **14** through **18** are next inserted into the bone substance with the generally pointed end **43** of the screw being initially inserted into the bone substance. A suitable tool (not shown) is used to engage the trailing end **45** of member **41** to allow the surgeon to rotate the screw such that the external threading **42** of member **41** engages with the bone substance.

As shown in FIG. **3**, the surgeon rotates the screw **30, 40** until the reduced diameter trailing end **44** of member **41** projects a predetermined endwise distance beyond and away from the end region of the respective bone and extends toward the opposing end region of the other bone. Turning to FIG. **7**, the reduced diameter portion **44** of member **41** of each screw **30, 40** is sized to pass endwise through the bore **26** defined toward the free end of each leg portion **23, 24** of the connector **20**.

Turning now to FIG. **8**, and after the reduced diameter portion **44** of member **41** of screws **30, 40** is inserted endwise through the bore **26** on each leg portion **23, 24** of connector **20**, the threaded shank portion **62** of fastener **60** is passed endwise through bore **72** of washer **70**. The subassembly of fastener **60** and washer **70** is then fastened to the respective screw **30, 40**.

Returning to FIG. **7**, each fastener **60** is rotated thereby fixedly securing the leg portions of the connector **20** to the screws **30** and **40**. As shown in FIG. **7**, the axial length of the reduced diameter portion **44** of member **41** combined with the thickness between the planer surfaces **73, 74** (FIGS. **24** and **25**) of washer **70** is equivalent to the thickness of the leg portion between the outer and inner surfaces **27** and **28**, respectively, of the connector **20**. Thus, the cumulative length of the reduced diameter portion **44** of member **41** and the washer **70** provides a visual indication when each leg portion **23, 24** of connector **20** is fixedly secured to the screw **30, 40**.

Turning to FIGS. **26** and **27**, the connector **20** of joint assembly **16** serves a dual purpose. First, the connector **20** of joint assembly **16** fixedly interconnects the bones **10** and **12** relative to each other. Also, the flexible connector **20** of the joint assembly **16** allows the patient's finger to bend or flex without pain and in a manner repeatedly sustaining the stresses developed while the patient bends or flexes the finger joint **16**.

Another embodiment of the joint assembly according to the present invention is illustrated in FIGS. **28, 29** and **30** and is designated therein generally by reference numeral **116**. The joint assembly **116** functions to fixedly and articulately secure the surgically severed bones **10** and **12** in proper relation relative to each other.

As shown in FIGS. **31** and **32**, this alternative embodiment of the fixation assembly **116** comprises a connector **120** for fixedly and articulately interconnecting joint ends of first and second screws **130** and **140**, respectively, to each other.

Connector **120** of joint assembly **116** is fabricated from a material that is biocompatible with the human and bone tissue and is preferably selected from a class comprised of: ultrahigh molecular weight polyethylene or a polymer similar thereto, or nylon. As shown in FIGS. **33** and **34**, connector **120** comprises a cylindrical member **122** of a predetermined length. In the preferred form of the invention, member **122** is substantially solid but it is within the spirit and scope of the present invention that the cylindrical member **122** could be formed as a cylindrical tube-like member.

As shown in FIGS. **35, 36** and **37**, screw **130** comprises an elongated member **131** having external threading **132** extending axially rearwardly from a generally pointed or leading end **133** thereof. The elongated member **131** is preferably fabricated from a material that is biocompatible with the human and bone tissue and is preferably selected from a class comprised of: titanium, a titanium based alloy, stainless steel, or a cobalt chromium alloy. The external threading **132** extends axially lengthwise of member **131** and has a generally uniform pitch between leading and trailing ends thereof. The threading **132** on member **131** has a relatively coarse pitch such that a substantive holding force will be developed when the screw **130** is threadably secured within the bone substance of bone **10**.

As shown, member **131** defines an eye portion **134** at the trailing end thereof. In this embodiment of the invention, the eye portion **134** of member **131** is preferably formed integrally with the remainder of member **131** and defines a cylindrical bore **135** having a closed margin defined by eye portion **134**. Notably, bore **135** has a diameter which is specifically sized to establish a free or running fit relative to the connector **120** passing therethrough.

Eye portion **134** further includes two generally planar and parallel surfaces **136** and **137** preferably disposed on opposite sides of a longitudinal axis of member **131**. In a most preferred form of the invention, the surfaces **136** and **137** are equally disposed relative to the longitudinal axis of member **131**. Moreover, each surface **136** and **137** defines a pair of stops **138** and **139** disposed on opposite sides of the longitudinal axis of member **131**. As shown in FIG. **35**, stop **138** is disposed relative to the longitudinal axis of member **131** to define an included angle a therebetween. Also as shown in FIG. **35**, stop **139** is disposed relative to the longitudinal axis of member **131** so as to define an included angle β there between. In a most preferred form of the invention, the included angle measures about 60 degrees. Moreover, and in the most preferred form of the invention, the included angle β measures about 75 to 80 degrees.

As shown in FIGS. **38, 39** and **40**, screw **140** comprises an elongated member **141** having external threading **142** extending axially rearwardly from a generally pointed or leading end **143** thereof. The elongated member **141** is preferably fabricated from a material that is biocompatible with the human and bone tissue and is preferably selected from a class comprised of: titanium, titanium based alloy, stainless steel, or a cobalt chromium alloy. The external threading **142** extends axially lengthwise of member **141** and has a uniform pitch between leading and trailing ends thereof. The threading **142** on member **141** has a relatively coarse pitch such that a substantive holding force will be developed when the screw **140** is threadably secured within the bone substance of bone **12**.

As shown, member **141** defines an eye portion **144** at the trailing end thereof. In this embodiment of the invention, the eye portion **144** of member **141** is preferably formed integral with the remainder of member **141** and defines a cylindrical bore **145** having a closed margin defined by eye portion **144**. Notably, bore **145** has a diameter that is specifically sized to accommodate the connector **120** therewithin and establish a press fit therewith.

It will be appreciated, of course, that the relationship of the members **131** and **141** relative to the connector **120** can be readily reversed without detracting or departing from the spirit and scope of the present invention. That is, the bore **145** defined by member **141** may be specifically sized to establish a free or running fit relative to the connector **120** while the bore **135** of member **131** may accommodate and establish a press fit with the connector **120**. Suffice it to say, the connector **120** is maintained in position by one of the members **131, 141** while allowing the other member **131, 141** to freely rotate about the longitudinal axis of the connector **120** and for purposes of this invention it does not significantly matter which member **131, 141** turns and which member **131, 141** holds the connector **120** in position.

In the illustrated embodiment, eye portion **144** of screw **140** includes a pair of bifurcated arms **146** and **147** defined on opposite sides of the longitudinal axis of member **141**. In this illustrated embodiment of the invention, and to enhance the operability of the joint assembly **116**, the bifurcated arms **146** and **147** are spaced apart by a distance which is greater than the distance separating the planar surfaces **136** and **137** on the eye portion **134** of screw **130** such that a free or running fit is established between the eye portion **134** of screw **130** and the eye portion **144** of screw **140**. Moreover, each bifurcated arm **146** and **147** of member **141** defines a pair of stops **148** and **149**. As shown in FIG. **40**, stop **148** is disposed relative to the longitudinal axis of member **141** such that an included angle θ is defined therebetween. Moreover, the stop **149** is angularly disposed relative to the longitudinal axis of member **141** such that an included angle γ is disposed therebetween. In a most preferred form of the invention, the included angle θ defined between stop **148** and the longitudinal axis of member **141** is equal to about 60 degrees. Similarly, the included angle γ defined between stop **149** and the longitudinal axis of member **141** is equal to about 60 degrees. It should be appreciated, however, that all the angles specified above are exemplary for the members **131** and **141**. Ultimately, the angles defined by the screws **130** and **140** for defining or limiting angular movement of the particular joint being replaced will be determined by the individual joint requiring replacement.

As shown in FIG. **41**, member **131** may further define an elongated axial bore **150** that opens to the leading or pointed end **133** of member **131** and bore **135** of member **131**. Member **131** may further define a series of radially extending bores or openings **152** that are axially spaced relative to each other along the length of member **131**. As shown, each bore or opening **152** opens at one end to the throughbore **150** and opens at an opposite end to a root area of the external threading **132**. The purpose of bores **150** and **152** is to allow a suitable sealant to be directed through the bores **150** and **152** and into the bone substance once the screw **30** is secured fastened within the bone. As will be appreciated, member **141** of screw **140** may be similarly configured.

Returning to FIG. **28**, after opposing end regions of the bones **10** and **12** have been surgically severed or cut, the joint assembly **116** is inserted to replace and act as the distal interphalangeal joint. To begin, a probe (not illustrated) is inserted into the exposed medullary cavity of the bone to localize a suitable longitudinal axis for insertion of a respective screw **130, 140**. A recess is then drilled in the exposed medullary cavity. The screw **130**, similar to that illustrated in FIGS. **32, 35, 36** and **37**, is next inserted into the bone substance with the generally pointed end **133** being initially inserted into the bone substance. As the screw **130** is turned, the external threading **132** of member **131** engages with the bone substance.

Screw **140**, similar to that illustrated in FIGS. **32, 38, 39** and **40**, is then inserted into the bone substance of bone **12** with the generally pointed end **143** being initially inserted into the bone substance. As will be appreciated, the external threading **142** of member **141** engages with the bone substance of bone **12**.

As shown in FIG. **28**, the surgeon rotates the screws **130** and **140** until the bores **135** and **145** of screws **130** and **140**, respectively, project a predetermined endwise distance beyond and away from the end region of the respective bone and align relative to each other. Thereafter, the connector **120** is positioned through the bores **135** and **145** thereby fixedly and articulately interconnecting the screws **130** and **140** and the bones **10** and **12**, respectively, to each other.

As seen in FIG. **42**, as long as the patient's finger remains in its normal position (FIG. **28**), the stops **138**, **139** and **148**, **149** on screws **130** and **140**, respectively, have no affect on the joint assembly **116**. The stops **138**, **139** and **148**, **149** on screws **130** and **140**, respectively, are angularly positioned relative to each other to limit the arcuate movement of the screws **130** and **140** and the bones attached to each **10** and **12**, respectively, relative to each other.

As seen in FIG. **43**, when the patient flexes or bends the distal end of the digit implanted with the artificial joint assembly **116** upwardly (FIG. **29**), the stops **139** and **149** on screws **130** and **140**, respectively, move into an abutting relationship relative to each other. Accordingly, the joint **116** and the bones **10** and **12** attached thereto are limited by the stops **139** and **149** moving into an abutting relationship to each other. Notably, the stops **138** and **148** on screws **130** and **140**, respectively, have no affect when the finger joint flexes in the direction shown in FIG. **29**.

As seen in FIG. **44**, when the patient flexes or bends the digit implanted with the artificial joint assembly **116** as shown in FIG. **30**, the stops **138** and **148** on screws **130** and **140**, respectively, come into an abutting relationship relative to each other thereby limiting further movement of the finger joint and the bending of the patient's finger. Notably, when the patient bends or flexes the joint in the direction shown in FIG. **30**, limit stops **139** and **149** on screws **130** and **140** have no affect on the joint assembly **116**.

Another embodiment of the joint assembly according to the present invention is shown in FIG. **45** as forming an artificial interphalangeal joint between bones **110** and **112**. The FIG. **46** schematically illustrates the bones **110** and **112** prior to insertion of the artificial joint assembly. Again, the proximal interphalangeal finger joint, shown in FIG. **45** through **47**, is a model wherein the joint assembly of the present invention can be utilized but the present invention should not be considered to be limited to finger joints. As shown in FIG. **47**, prior to insertion of the joint assembly of the present invention therebetween, abutting end portions of the first and second bones **110** and **112**, respectively, are surgically severed or cut thus exposing the medullary cavity therewithin.

The alternative embodiment of the joint assembly illustrated in FIG. **45** is designated generally by reference number **216**. The joint assembly **216** functions to fixedly and articulately connect the surgically severed bones **110** and **112** in proper relation relative to each other. The elements of this alternative embodiment of the implantable joint assembly that are identical or functionally analogous to those components mentioned above with respect to the finger joint **16** are designated by reference numerals identical to those used above with the exception that this embodiment referenced numerals are in the **200** series.

Turning to FIG. **48**, this alternative embodiment of the joint assembly **216** comprises a connector **220** for fixedly and articulately interconnecting joint ends of first and second screws **230** and **240**, respectively, to each other. The connector **220** shown in FIGS. **48** and **49** is substantially similar to the connector **20** illustrated in FIGS. **9** through **13**. Thus, no further detailed description need be provided thereto at this time. Suffice it to say, connector **220** includes flexibly interconnected leg portions **223** and **224** that each define a bore **226** toward a free end thereof.

In this embodiment of the invention, the first and second screws **230** and **240**, respectively, are substantially identical. Moreover, and with exception to their length and possibly their diameter, each screw **230**, **240** is substantially similar to screw **40** described above with reference to FIGS. **14** through **18**. Thus, no further detailed description need be provided at this time. Suffice it to say, each screw **230**, **240** includes an externally threaded portion **242** and a reduced diameter portion **244**.

The illustrated embodiment of the joint assembly **216** further comprises a pair of fasteners **260** for interconnecting the respective leg portion of the connector **220** to the respective screw **230**, **240**. Each fastener **260** of this alternative embodiment of the joint assembly is substaitially similar to the fastener **60** shown in FIGS. **19** through **21**. Thus, no further description need be provided at this time.

To facilitate the distribution of forces and stresses, the joint assembly **216** further utilizes thrust washers **270**. As shown, one thrust washer **270** is operably associated with each fastener **260**. The thrust washer **270** is substantially similar to the washer **70** illustrated in FIGS. **22** through **25**. Thus, no further description need be provided at this time.

This alternative embodiment of the joint assembly **216** further includes first and second grommets **280** and **290**, respectively. Notably, and in accordance with another aspect of the present invention, the grommets **280**, **290** are intended to be provided in a plurality of different sizes. As will be appreciated, the various size grommets allow the surgeon to select a grommet that is sized to fit particularly well within the specific medullary cavity of the particular patient thereby advantageously stabilizing the joint assembly **216** relative to the end regions of bones **110** and **112** that are to be articulately joined relative to each other. As will be described below, the grommets **280** and **290** are specifically designed and/or configured to promote boney ingrowth. Thus, and while each screw **230**, **240** serves to initially fasten the joint assembly **216** in place, the grommets **280**, **290** of the joint assembly **216**, along with the boney ingrowth associated therewith, serve to securely fasten the joint assembly **216** in place for long term use.

As will be appreciated, and as mentioned, the specific sizes of the grommets **280**, **290** can vary relative to each other. The intended function, purpose, and overall configuration of the grommets **280**, **290** are, however, identical. Since the intended function, purpose, and overall configuration of the grommets **280**, **290** are preferably identical, only grommet **280** will be discussed in detail with the understanding that the grommet **290** is substantially identical thereto.

The grommets used in combination with the joint assembly **216** is best illustrated in FIGS. **50** through **54**. Each grommet **280**, **290** is preferably formed from a material chosen from the class including: titanium, titanium alloy, stainless steel, a cobalt chromium alloy, ceramic, or other suitable material that promotes boney ingrowth. As shown therein, grommet **280** includes an axially elongated member **281** having a bore **282** extending between opposite end portions **283** and **284**. Notably, the throughbore **282** is specially sized to fit over the external threading **232** and **242** provided axially along the length of each screw **230** and **240**, respectively. As shown in FIG. **45**, end portion **283** of the respective grommet is adapted to be initially inserted into

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DIVISIÓN DE NUEVAS CREACIONES

2020
Bogotá, D.C.,

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ASUNTO	Radicación	**06 - 96398**
	Trámite	011
	Evento	379
	Actuación	430
	Oficio	
	Folios	06 12201

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

No. Sol. Internacional PCT/CH2004/000187
Fecha de Presentación Internal. 2004/03/26

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 comunica:

1. Documentos estudiados

Descripción:	Folios:	37	a	43	Como se radico inicialmente.
Reivindicaciones:	Folios:	44	a	45	Como se radico inicialmente.
Dibujos:	Folios:	47	a	50	Como se radico inicialmente.
Prioridad:	Folios:				No solicita prioridad.

2. Objeto de la invención

Titulo de la invención: **"TORNILLO ARTICULADO PARA HUESO". (Folio 1).**

Problema Técnico Planteado:

- Facilitar la elasticidad axial y la aplicación de torque en un tornillo articulado cuando se inserta dentro de un hueso, evitando la ayuda de instrumentos o implantes adicionales para su estabilización, cuando se realiza su respectivo procedimiento quirúrgico.

Solución:

- La solución a los problemas técnicos planteados es proporcionar un tornillo articulado para hueso, que se puede doblar en todas las direcciones con relación a su eje longitudinal aunque, al mismo tiempo, este retenga su rigidez axial y transmita un torque completamente sin la ayuda de medios adicionales. Este tornillo articulado para hueso consta

de una cabeza, un vástago y un eje longitudinal, el vástago comprende una sección próxima adyacente a la cabeza y una sección distante asegurada a la sección próxima por un cardan o unión similar a cardan, siendo la sección distante adecuada para la introducción en el hueso, estando provista con una rosca exterior. El tornillo para hueso se puede doblar en todas las direcciones con relación a su eje longitudinal, aunque reteniendo su rigidez axial y transmitiendo completamente un acople sin la necesidad de medios adicionales.

IPC: **A61B17/86, A61B17/68.**

3. Análisis de la solicitud de Patente

Reivindicaciones *(artículo 30 D 486, Art 22 PCT).*

Claridad:

- En la reivindicación dependiente No.4, se ilustra la característica llamada *"varias uniones de cardan o similares"*, se evidencia que no es clara, no define de manera especifica y concreta a que elementos se están refiriendo, debido a que según la invención solamente se refiere es a una sola unión y no a varias uniones, por lo cual crea confusión al momento de comprender y analizar esta reivindicación.

  Se le sugiere al solicitante redactar nuevamente esta reivindicación, colocando de manera especifica, concreta y coherente a que elementos, características, componentes o términos, se esta refiriendo, con el objetivo de comprender mejor la invención al momento de hacer el análisis y distinguir los elementos de dicha invención.

  Se le sugiere al solicitante presentar una nueva reivindicación independiente No.1, que contenga en el preámbulo los elementos conocidos en el estado de la técnica y en la parte caracterizadora presentar los elementos y/o características novedosas que lo hacen diferente del estado de la técnica.

  Se le recuerda al solicitante que en la reivindicación independiente, la parte caracterizadora, que suele seguir al preámbulo precedida por la frase ***"caracterizado por"***, recoge las características técnicas que van hacer protegidas y que constituyen la novedad frente al objeto conocido del estado de la técnica.

  Se le sugiere al solicitante, que en el capitulo reivindicatorio coloque los números de referencia al frente de todos los componentes y/o elementos que hacen parte o conforman la invención, guardando una correspondencia entre las graficas y/o dibujos, el capitulo descriptivo y dicho capitulo reivindicatorio, con el objetivo de comprender mejor la invención al momento de hacer el análisis, y a su vez distinguir los elementos de dicha invención.

4. Determinación del Estado de la Técnica

Teniendo en cuenta la fecha de presentación nacional, con fecha del 01 de Septiembre del 2006, se encontraron los siguientes documentos relevantes:

Nº	Documento	Título	Fecha de Publicación
D1	US6475242	ARTHROPLASTY JOINT ASSEMBLY	05/11/2002

5. Análisis de Patentabilidad (Art 14 D486):

Novedad (Art 16 D486)

1. Respecto a la solicitud en estudio:

La reivindicación No.1 dice: "Un tornillo para hueso (1) con una parte de cabeza (2), un vástago (3) y un eje longitudinal (9), ***caracterizado porque*** el vástago (3) comprende una sección próxima (5), adjuntando la parte de cabeza (2) y una sección distante (7), que se asegura a esta por medio de un cardan o una unión similar a cardan (6) para la introducción en el hueso y se suministra al menos parcialmente con una rosca externa (4)". (Ver folio 44).

Para efectos del examen, se toma en cuenta como características técnicas esenciales las que se encuentran subrayadas por el examinador.

2. Respecto al estado de la técnica:

El documento **D1 US6475242** ilustra una junta de ensamble interconectada articuladamente a un primer hueso y a un segundo hueso opuestos entre si en una posición longitudinal adyacente, permitiendo un anclaje flexible articulado los huesos, manteniendo una misma distancia de fijación. (Ver *"Abstract, Columnas 11 a 16"* y las *"figuras No.29 a 44"*).

3. Análisis de las diferencias con respecto al estado de la técnica:

En la tabla No.1, se ilustran en las casillas de comparación, la explicación de Afirmativa si las reivindicaciones están comprendidas dentro del estado de la técnica (documento **D1**), en caso contrario se enunciara como No es Afirmativa.

Tabla No.1.

ESTUDIO DE NOVEDAD	
Caracteristicas esenciales de la Solicitud en estudio	**Documento D1**
el vástago (3) comprende una sección próxima (5), adjuntando la parte de cabeza (2) y una sección distante (7), que se asegura a esta por medio de un cardan o una unión similar a cardan (6) para la introducción en el hueso y se suministra al menos parcialmente con una rosca externa (4)"	**Afirmativa (Ver *"Abstract" columna 11 a 16 (lin 1 a 67),* figuras 29 a 44).**

4. Realizada la comparación y el análisis del documento D1, mediante la tabla No.1 con respecto a la solicitud en estudio donde se presenta la reivindicación No.1, se evidencia que D1 contiene todas las características esenciales de la reivindicación No.1. Por lo que se concluiría que la reivindicación No.1 de la solicitud en estudio no es nueva y no cumpliría con lo estipulado en el artículo 16 de la decisión 486.

Conclusión:

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

N°	Documento N°	Reivindicaciones Afectadas	Requisito que Afecta
D1	US6475242	1 a 10	Novedad

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

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2 literal e), del capitulo quinto del titulo primero de la circular única, No. 10 del 2001.

ALIX CESPEDES DE VERGEL
Jefe de División de Nuevas Creaciones

El anterior requerimiento fue notificado por fijación en lista, de fecha 30 OCT. 2009

CONCEPTO TECNICO Numero: 3466	EXAMINADOR TECNICO Código No. 202072