

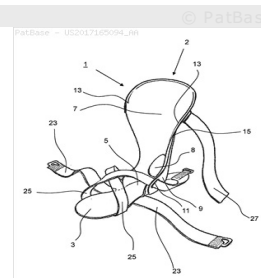
50) Family number: 60747311 (US2017165094A)

ANKLE-FOOT ORTHOSIS

Abstract: Source: US2017165094A The invention relates to an ankle-foot orthosis which comprises means that limit the plantar flexion of the foot and which is configured to provide support for a user's foot drop. The ankle-foot orthosis comprises a lower leg shell comprising a foot support (3) and a lower leg support (7), as well as heel fixing means which position and/or fix a user's heel in the lower leg support. The plantar flexion motion of the foot is limited by the complementary action of the elastic (23) and the non-elastic (25) plantar flexion limiting means. The plantar flexion limiting means further lead to a dynamic return of the foot to an angle substantially equal to the angle value α_2 .

Probable Assignee: NEA INT BV

Earliest Publication Date: 20151112



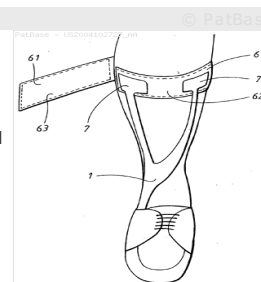
51) Family number: 24114771 (US2004102727A)

ANKLE-FOOT ORTHOSIS

Abstract: Source: US2004102727A The present invention provides an ankle-foot orthosis (1) that comprises a strut (2) extending over the front of the lower leg and anterior of the lateral ankle, a foot plate (3) extending beneath the sole of the foot and a fastening means for the fastening the orthosis(1) to the leg. The strut comprises a bifurcation zone (9) and two strut branches (2', 2'') arranged to extend on the outside of the lower leg on each side of the tibia. Thus the present invention provides an orthosis (1) with high resistance against wear and tear, high wear comfort for the patient and an orthosis (1) enabling an almost normal gait.

Probable Assignee: CAMP SCANDINAVIA AB

Earliest Publication Date: 20021024



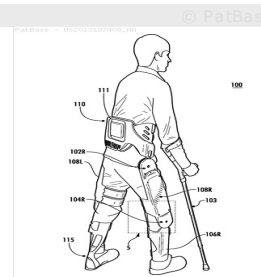
52) Family number: 50908916 (US2013197408A)

MOVEMENT ASSISTANCE DEVICE

Abstract: Source: US2013197408A A apparatus includes an exoskeleton system with a plurality of sensors for generating signals indicating a current motion and a current arrangement of at least the exoskeleton system, a hip segment, and at least one lower limb. The lower limb includes thigh and shank segments for coupling to a lateral surface of a user's leg. The thigh segment includes a first powered joint coupling the thigh segment to the hip segment, a second powered joint coupling the thigh segment to the shank segment, and a controller coupled to the sensors, the first powered joint, and the second powered joint. The controller is configured for determining a current state of the exoskeleton system and a current intent of the user based on the signals and generating control signals for the first and second powered joints based on the current state and the current intent.

Probable Assignee: VANDERBILT UNIV

Earliest Publication Date: 20120405



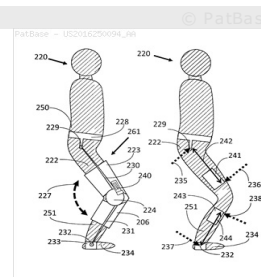
53) Family number: 59292286 (US2016250094A)

MACHINE TO HUMAN INTERFACES FOR COMMUNICATION FROM A LOWER EXTREMITY ORTHOTIC

Abstract: Source: US2016250094A A lower extremity orthosis is configured to be coupled to across at least one joint of a person for gait assistance and can incorporate knee, thigh, hip and ankle/foot assistive orthotic devices which can be used in various combinations to aid in the rehabilitation and restoration of muscular function in patients with impaired muscular function or control.

Probable Assignee: EKSO BIONICS INC

Earliest Publication Date: 20150521



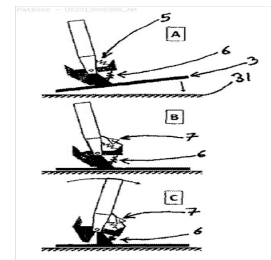
54) Family number: 51596423 (US2013006386A)

FURTHER IMPROVEMENTS TO ANKLE-FOOT PROSTHESIS AND ORTHOSIS CAPABLE OF AUTOMATIC ADAPTATION TO SLOPED WALKING SURFACES AND METHODS OF USE

Abstract: Source: US2013006386A The present invention relates to an improved system for use in rehabilitation and/or physical therapy for the treatment of injury or disease to the lower limbs or extremities. The system can enable an amputee to proceed over any inclined or declined surface without overbalancing. The system is mechanically passive in that it does not utilize motors, force generating devices, batteries, or powered sources that may add undesirable weight or mass and that may require recharging. In particular the system is self-adapting to adjust the torque moment depending upon the motion, the extent of inclination, and the surface topography. An additional advantage of the improvement is that the system can be light and may also be simple to manufacture.

Probable Assignee: NORTHWESTERN UNIV

Earliest Publication Date: 20120726



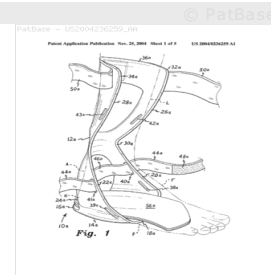
55) Family number: 31368373 (US2004236259A)

MODULAR ANKLE-FOOT ORTHOSIS

Abstract: Source: US2004236259A A modular ankle-foot orthosis includes a lower leg and ankle support and a plantar foot support. The two components may be secured together to provide more complete support for a patient, as required. The two supports may be attached in various ways, such as a bottom heel clip extending from the foot support component, which secures through a passage in the heel of the lower leg and ankle support component. A tongue extends from the foot support clip, to capture the material at the edge of the lower leg and ankle support passage between the tongue and the foot support plate. The two components are quickly and easily assembled together and disassembled as required, to provide more versatile treatment for the patient. The complete structure, or any components thereof, is sufficiently thin to allow wear within a conventional walking shoe or the like.

Probable Assignee: BURNS MICHAEL

Earliest Publication Date: 20041125



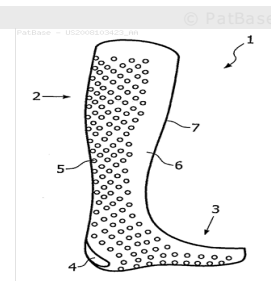
56) Family number: 33205697 (US2008103423A)

ORTHOSIS AND METHOD FOR MANUFACTURE THEREOF

Abstract: Source: US2008103423A A pre-fabricated orthosis suitable for embracing and supporting a body part of a human or animal is disclosed. The orthosis has an articulation and may be made from a pre-formed sheet of material containing cork and a thermoplastic binder. The orthosis may be uniformly perforated in its central part and may be composed of a mixture of cork and ethyl vinyl acetate (EVA). A method of manufacturing the orthosis is also disclosed.

Probable Assignee: ORTOPEDIJOS KLINIKA UAB

Earliest Publication Date: 20060727



57) Family number: 56730340 (US2015320581A)

ORTHOPAEDIC DEVICE FOR A LOWER LIMB OF A HUMAN, FOOTWEAR AND PROSTHESIS PROVIDED WITH SUCH A DEVICE

Abstract: Source: US2015320581A An orthopaedic device for a lower limb of a human, includes: a front segment (2) suitable for receiving the sole of a forepart; and a rear segment (10) suitable for receiving the lower surface of the heel, wherein: the front segment and the rear segment consist of two separate parts, the front segment and the rear segment are connected by at least one resilient upper arch (8) which extends above the front segment and the rear segment, providing a recess for receiving the foot, and is suitable for maintaining the front segment and the rear segment in an inoperative position, such as to enable a relative movement of the front segment and the rear segment relative to one another, from the inoperative position, and to resiliently return the segments to the inoperative position thereof.

Probable Assignee: CAUSSE ENOIT

Earliest Publication Date: 20140619



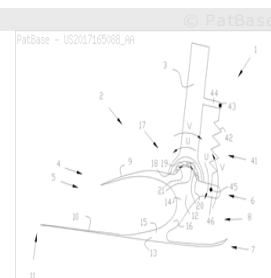
58) Family number: 61456737 (US2017165088A)

A PROSTHESIS OR ORTHOSIS COMPRISING A HINGE JOINT SYSTEM FOR FUNCTIONALLY ASSISTING, ENHANCING AND/OR REPLACING A HINGE JOINT OF A HUMAN OR ANIMAL SUBJECT

Abstract: Source: US2017165088A A prosthesis or orthosis having a movement controlling mechanism (MCM) including a first MCM part, a second MCM part and one or more intermediate elements and biasing mechanism which, in a contacting mode of operation of the MCM, bias the intermediate elements against a MCM part. When a relative torque or force is applied in a blocking sense (U) transmission of torque is allowed and, on the other hand, when a torque or force is applied in the opposite sense (V) non-blocking relative movement is allowed

Probable Assignee: VRIJE UNIVERSITEIT BRUSSEL

Earliest Publication Date: 20160121



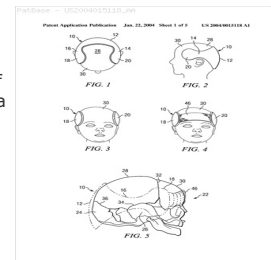
59) Family number: 30187804 (US2004015118A)

CRANIAL ORTHOSIS FOR PREVENTING POSITIONAL PLAGIOCEPHALY IN INFANTS

Abstract: Source: US2004015118A A cranial orthosis is contoured to match the curvature of the fronto-temporal, parietal and occipital areas of an infant's cranial vault to provide protection against the acquisition of postural cranial deformities as a result of the infant's sleeping in the supine position. The orthosis is designed to be of universal fit, as determined by the infant's fronto-occipital head circumference (FOC) measurement. Moreover, the interior dimensions of the orthosis can be enlarged to accommodate growth of the infant's head without requiring replacement. The orthosis is a molded plastic appliance in the form of a shell, headband or helmet having interior surfaces that are smoothly contoured to conform in shape to the surface curvature of the occipital, temporal and parietal areas of a healthy human infant having normal cranium size, shape and symmetry. The cavity is sized to provide a close, non-interfering fit of the conformed interior surfaces in facing relation to the occipital, fronto-temporal and parietal areas of the infant's cranial vault, thereby allowing the the infant's head weight forces to spread substantially uniformly across one or more of the conformed interior surfaces while the infant is resting on a sleep surface in the supine position.

Probable Assignee: INFA SAFE INC

Earliest Publication Date: 20040122



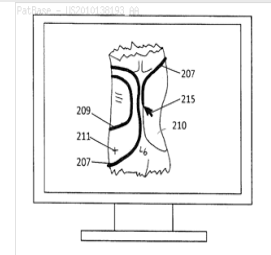
60) Family number: 44990529 (US2010138193A)

CUSTOM BRACES, CASTS AND DEVICES AND METHODS FOR DESIGNING AND FABRICATING

Abstract: Source: US2010138193A A custom device and method for fabricating the custom device includes marking a body with reference points and/or other indicators. Multiple images of the body from multiple angles are then obtained. The images are used to determine the contours of the body and the other markings are located and used to design the custom device. The custom device can be fabricated as a single piece structure or in multiple pieces that are assembled to complete the custom device.

Probable Assignee: 3D SYSTEMS INC

Earliest Publication Date: 20100514



61) Family number: 15248712 (US6146349A)

NATURAL FOOT ORTHOSIS AND METHOD OF MANUFACTURING THE SAME

Abstract: Source: US6146349A A copolymer thermoplastic natural foot orthosis for supporting and controlling the movement of a lower extremity and method for manufacturing the same. The orthosis is fabricated by forming a positive mold of the lower extremity, and modifying the positive mold in predetermined locations to accomplish the type of lower extremity control desired. A strip of heated thermoformable copolymer material is strategically positioned around predetermined locations on the positive mold for providing increased support for the natural foot orthosis at these predetermined locations. A sheet of heated thermoformable copolymer material is then drape mold around the positive mold and copolymer strip, wherein the copolymer sheet is vacuum sealed to conform to the shape of the positive mold. During the vacuum formation process, the copolymer sheet and copolymer strip combine together so that the copolymer sheet and copolymer strip are integrally formed into a single supporting structure. After the thermoformed copolymer sheet and strip have cooled, strategically positioned trimlines are made in the thermoformed copolymer sheet depending upon the lower extremity control desired, wherein all excess material outside of the trimlines is removed. Utilizing modifications to the positive mold and strategically positioned trimlines in conjunction with the reinforcing copolymer strip, a natural foot orthosis is achieved that is lighter, cosmetically superior, dynamic and durable.

Probable Assignee: ROTHSCCHILD S ORTHOPEDICS

Earliest Publication Date: 19980320



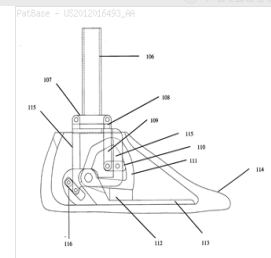
62) Family number: 49799597 (US2012016493A)

PASSIVE ANKLE-FOOT PROSTHESIS AND ORTHOSIS CAPABLE OF AUTOMATIC ADAPTATION TO SLOPED WALKING SURFACES AND METHOD OF USE

Abstract: Source: US2012016493A The present invention relates to an improved system for use in rehabilitation and/or physical therapy for the treatment of injury or disease to the lower limbs or extremities. The system can enable an amputee to proceed over any inclined or declined surface without overbalancing. The system is mechanically passive in that it does not utilize motors, force generating devices, batteries, or powered sources that may add undesirable weight or mass and that may require recharging. In particular the system is self-adapting to adjust the torque moment depending upon the motion, the extent of inclination, and the surface topography. An additional advantage of the improvement is that the system can be light and may also be simple to manufacture.

Probable Assignee: DEPARTMENT OF VETERANS AFFAIRS

Earliest Publication Date: 20111020



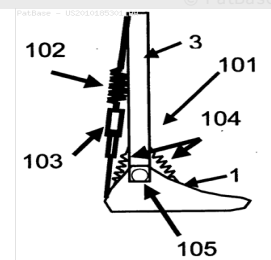
63) Family number: 41745935 (US2010185301A)

EQUILIBRIUM-POINT PROSTHETIC AND ORTHOTIC ANKLE-FOOT SYSTEMS, DEVICES, AND METHODS OF USE

Abstract: Source: US2010185301A The present invention relates to a system for use in rehabilitation and/or physical therapy for the treatment of injury or disease. The system can enable an amputee to proceed over any surface without overbalancing. In particular the system is self-adapting to adjust the torque moment depending upon the motion, the extent of inclination, and the surface topography.

Probable Assignee: NORTHWESTERN UNIV

Earliest Publication Date: 20080424

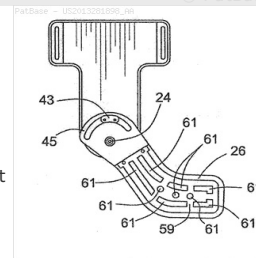


FOOT AND ANKLE ORTHOSES THAT ENABLE NATURAL MOVEMENT OF THE FOOT

Abstract: Source: US2013281898A An ankle brace includes upper and lower members with a hinge therebetween. The hinge is configured to be positioned at a location that corresponds to, or at least approximately corresponds to, a true axis of rotation of an individual's foot relative to the tibia bone in his or her lower leg. That axis of rotation is located below the tibialtalor junction, along which tibia and talus articulate as the foot is moved between dorsiflexion and plantarflexion orientations. A foot orthosis includes an arch support that is configured to support at least a portion of a longitudinal arch of an individual's foot regardless of whether or not a ground reaction force is applied to the arch support or to the foot. Such an arch support and an orthosis of which it is a part may be configured to exert an upward force on the longitudinal arch regardless of whether or not any weight is applied to the foot or to the arch support. The arch support may be configured to follow or substantially follow a path of the posterior tibial tendon through the ankle and foot. An orthosis may include both the arch support and the hinge. Methods for support ankles and feet are also disclosed.

Probable Assignee: CROPPER DEAN

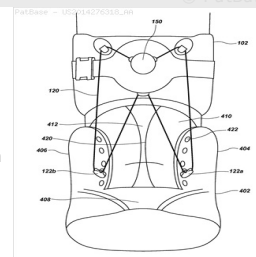
Earliest Publication Date: 20131003

**ORTHOTIC DEVICE, SYSTEM AND METHODS FOR ADDRESSING FOOT DROP**

Abstract: Source: US2014276318A A drop foot brace includes a securing member configured to be secured to a leg of a user, a foot-receiving member and a tensioning component. The tensioning component may include an elongated element a rotatable tightening member for adjusting a tension in the elongated element and two or more support engagers associated with the elongated element. Each support engager may include a long, curved hook guide that receives the elongated element and that is configured to minimize deformation and breakage of the elongate element. In addition, each support engager may include a hook configured to engage a corresponding feature of a foot-receiving member. The foot-receiving member may comprise footwear, such as a shoe or boot, or it may be configured to enable use of the support member (and, thus, of the drop foot brace) without footwear that covers the top, or dorsal portion, of the foot. Thus, the drop foot brace may be used when an individual decides to go barefoot or when the individual wears flip-flops or other sandals. Methods for addressing drop foot are also disclosed.

Probable Assignee: FOOTMIND INC

Earliest Publication Date: 20140918

**ORTHOPEDIC WALKING BRACE HAVING A CURVED SOLE**

Abstract: Source: US2014276317A Described herein are systems and devices for providing an orthopedic walking brace having a housing and a sole with a curved distal surface. The housing is configured to encompass and immobilize a patient's ankle against flexion. The distal surface of the sole has a posterior region, a mid region, and an anterior region. The posterior region is configured to lie under a heel portion of the patient's foot, and the mid region is configured to lie under a center portion of the patient's foot. The anterior region is configured to lie under an anterior metatarsal and toe portion of the patient's foot, and has an Anterior-Posterior curvature that increases from a posterior side of the anterior region toward a middle portion of the anterior region and decreases from the middle portion toward an anterior side of the anterior region.

Probable Assignee: DJO LLC

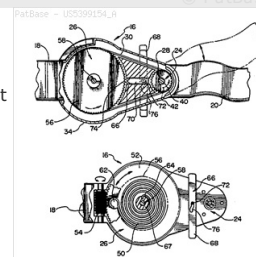
Earliest Publication Date: 20140918

**CONSTANT TORQUE RANGE-OF-MOTION SPLINT**

Abstract: Source: US5399154A A range-of-motion splint for applying constant torque across a joint undergoing rehabilitative therapy. The splint includes a first brace section configured to engage a portion of a patient's body on a first side of a joint, and a second brace section configured to engage a portion of the patient's body on a second side of the joint. A first arm extends from the first brace section and a second arm extends from the second brace section. The first and second brace section arms are pivotally connected about a splint pivot axis by a pivot mechanism. A driven pulley is mounted to the second arm about the splint pivot axis. A drive pulley is rotatably mounted to the first arm about a drive axis which is spaced from the splint pivot axis. Torque is applied to the drive pulley with respect to the first arm by a spiral spring positioned about the drive axis. A belt couples the drive pulley and the driven pulley to transfer the rotation of the drive pulley to the driven pulley and apply torque between the first and second brace sections. The amount of torque applied between the brace sections can be adjusted by a torque adjusting mechanism which winds and unwinds the spring. An adjustable stop mechanism can be used to limit the range of rotational motion between the brace sections. The brace sections can be locked with respect to one another by a locking mechanism which engages and prevents movement of the drive pulley.

Probable Assignee: EMPI INC

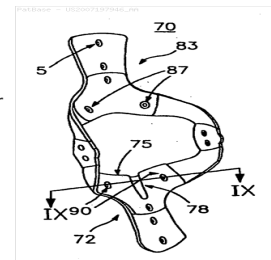
Earliest Publication Date: 19950112

**ORTHOTIC DEVICE AND SEGMENTED LINER**

Abstract: Source: US2007197946A An orthotic device is provided having a support member (22, 25) adapted to be secured to a body portion of a user and a resilient liner (46) connected to a side of the support member adjacent the body portion of the user. The support member can be malleable to conform to the user's body. The liner has a plurality of discrete liner segments (49), at least one adapted to conform to body of the user. The liner segments can be removably attached to the support member, and can be adjustable in shape and/or size. The liner segment can be a pair of individually adjustable segment portions to provide adjustable shape, and either of the portions can be inflatable to provide adjustable size. The liner segment can include an electrode portion (58) to impart therapeutic stimulation to an associated body portion and can include a microporous waterproof cover material contacting the body portion of the user.

Probable Assignee: VISION QUEST IND INC

Earliest Publication Date: 20050922



69) Family number: 55127244 (US2014276316A)

ANKLE-FOOT ORTHOSIS

Abstract: Source: US2014276316A An inventive ankle-foot orthosis which transfers a portion of a wearer's weight normally applied to a wearer's foot and ankle to a wearer's calf thereby removing weight bearing stress from the wearer's foot and ankle.

Probable Assignee: SCOTT ORTHOTICS LLC

Earliest Publication Date: 20131112



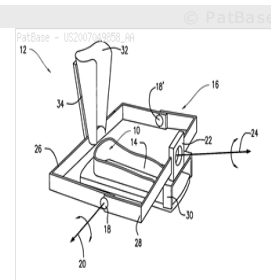
70) Family number: 34034438 (US2007049858A)

ANKLE-FOOT ORTHOSIS DEVICE

Abstract: Source: US2007049858A An ankle-foot orthosis comprising a leg member 12; a foot member 14; a frame 16 connecting the leg member to the foot member, wherein the frame comprises a first revolute joint 18 that rotates about a first axis 20 and a second revolute joint 22 that rotates about a second axis 24, wherein the first and second axes are non-parallel. The frame can further comprise a foot member segment 30 secured to the foot member 14 and extending to the second revolute joint 22. The orthosis can comprise a first force-torque sensor 36 located on the leg member, a second force-torque sensor 38 located on the foot member, and an encoder positioned on one of the revolute joints. The invention includes a method of measuring ankle-foot-related forces comprising positioning a subject's leg and foot in an ankle-foot orthosis; collecting data from the first and second force-torque sensors; and analyzing the collected data to determine the motion of the subject's ankle.

Probable Assignee: OF DELAWARE UNIV

Earliest Publication Date: 20061228



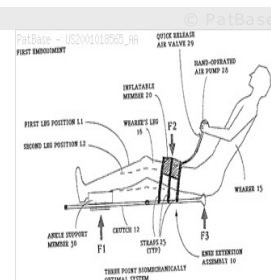
71) Family number: 30018248 (US2001018565A)

ORTHOTIC APPARATUS AND METHOD FOR USING SAME

Abstract: Source: US2001018565A An inflatable bladder position a distance from a joint is attached to an external structural support which crosses the joint but does not support it. By inflating the bladder one limb segment is forced towards the external support thereby increasing the ranges of motion of that joint. Further, the inflatable bladder has an instant release valve which, when pressed, will instantly release the pressure within the bladder. The limb is positioned intermediate the bladder and the external structural support for optimal biomechanical efficiency.

Probable Assignee: ERMIC INC

Earliest Publication Date: 20000224



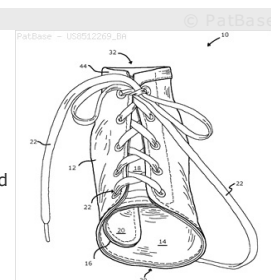
72) Family number: 54558083 (US8512269B)

MOLDED ANKLE-FOOT ORTHOSES AND METHODS OF CONSTRUCTION

Abstract: Source: US8512269B Disclosed is an ankle-foot orthosis that includes a boot and a pre-tibial shell. The boot includes an inner shell and outer shell between which are included padding and/or structural supports according to the needs of the patient to be treated. The pre-tibial shell likewise includes an interior layer and an exterior layer. Both the boot and the pre-tibial shell are custom molded to a casting made from an injured foot while taped in a non-weight-bearing position and corrected to a position of neutral pathology. Also disclosed is a method for constructing the disclosed ankle-foot orthosis.

Probable Assignee: PIXLEY SCOTT DAVIS

Earliest Publication Date: 20130820



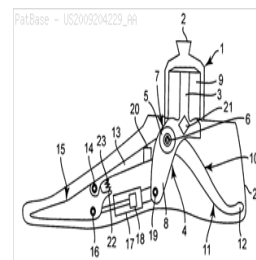
73) Family number: 43606912 (US2009204229A)

PASSIVE ORTHOPEDIC AID IN THE FORM OF A FOOT PROSTHESIS OR FOOT ORTHOSIS

Abstract: Source: US2009204229A The invention relates to a passive orthopedic aid in the form of a foot prosthesis or foot orthosis, with a first part which is connected to a second part in a rotatable manner via a swivel joint, with a sensor arrangement for measuring parameters that provide indications of instantaneous operation requirements of the aid, with a control means which is connected to the control arrangement and is used to determine operation requirements and to generate corresponding control signals, with a controllable hydraulic damping arrangement with which a movement resistance acting on the rotation movement between the first part and the second part can be modified, and with a control means which converts the control signals of the processor arrangement and is used to control the damping arrangement. The foot prosthesis is characterized in that the damping arrangement is a dual-action hydraulic cylinder with two hydraulic chambers separated from each other by a piston, and in that the hydraulic chambers are connected via two connection lines which permit a flow of the hydraulic fluid only in mutually opposite directions and whose flow resistances can be adjusted by the control separately and via their own adjustment means each, in that the processor arrangement is configured to determine a current neutral point position from the measured parameters of the sensor arrangement, and in that the control signals for the flow resistances in the two connection lines are generated with respect to the neutral point position.

Probable Assignee: OTTO BOCK HEALTHCARE GMBH

Earliest Publication Date: 20090807



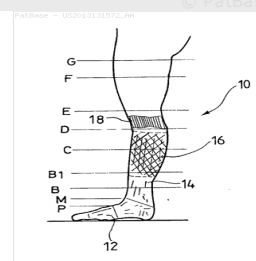
74) Family number: 53799315 (US2013131572A)

ADAPTED COMPRESSION/SPLINT ORTHOSIS FOR REINFORCEMENT OF THE CALF MUSCULOAPONEUROTIC PUMP

Abstract: Source: US2013131572A The orthosis (10) comprises an elastic compressive distal portion (14), extending upwards from the ankle, associated with an adjacent rigid splint proximal portion (16), enveloping the region of the calf comprised between the level of the point where the Achilles tendon joins the calf muscles and the level located below the tibial tuberosity. This rigid splint proximal portion (16) is an essentially non-elastic, deformable tubular portion, made by: placing the orthosis onto a template representative of the morphology of the patient's calf; applying in situ on the orthosis, in the region of the splint proximal portion, a hardenable biocompatible resin; hardening the resin with the orthosis maintained on the template; and removing the orthosis in its finished state.

Probable Assignee: INNOTHERA TOPIC INT

Earliest Publication Date: 20130522



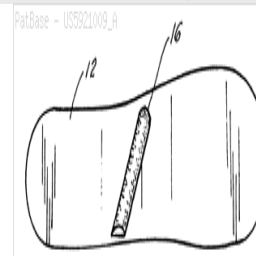
75) Family number: 30433436 (US5921009A)

FOOT LEVERAGE SYSTEM AND METHOD

Abstract: Source: US5921009A An adjustable dynamic, removable, mechanical foot leverage orthotic system is disclosed having a plate member positioned on top of a fulcrum member that are placed inside of a shoe. The plate is free to move within the shoe about the fulcrum to provide the wearer with mechanical improvement of abnormal, functional and associated foot pathology and can directly and indirectly effect the entire gait cycle. The foot leverage system can be integrated into the shoe design or can be inserted within a conventional shoe to create a foot leverage system. Methods of use and treatment are disclosed for the treatment of pes planus, pes cavus and tendonitis. The foot leverage system may also be used with the disclosed foot mapping system and method.

Probable Assignee: PIVOTAL IMAGE INC

Earliest Publication Date: 19990713



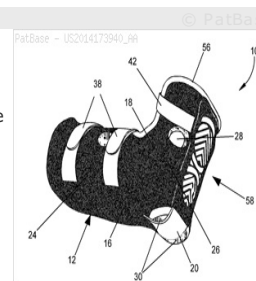
76) Family number: 56779309 (US2014173940A)

HEEL-SUSPENDING PROTECTIVE BOOT

Abstract: Source: US2014173940A A protective boot adapted to be worn by individuals when lying in a reclining position. The boot has leg and forefoot portions that provide foot and lower leg support for a wearer while suspending the wearer's heel. The boot may include low-friction materials at an exterior surface of its leg and forefoot portions and at a continuous rim separating the exterior surface from an interior surface of the body, in which case the boot also preferably includes a system for adjustably closing an anterior opening in the forefoot portion by drawing lateral regions of the forefoot portion inward and together. The boot may additionally or alternatively include an L-shaped backplate having portions located at the leg and forefoot portions of the body and adapted to inhibit buckling of the boot within the leg and forefoot portions.

Probable Assignee: DM SYSTEMS INC

Earliest Publication Date: 20140626



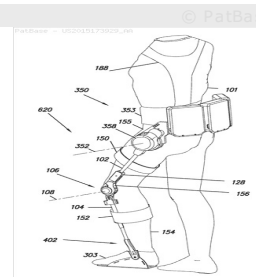
77) Family number: 55977052 (US2015173929A)

CONTROLLABLE PASSIVE ARTIFICIAL KNEE

Abstract: Source: US2015173929A An exoskeleton (100) adapted to be coupled to a lower extremity of a person includes a thigh link (102), a shank link (104) and a knee joint (106) allowing flexion and extension between the thigh and shank links (102, 104). A torque generator (156) connected to the knee joint (106) includes a wrap spring (110) having a first end (112) coupled to the thigh link (102), and a second end (118) coupled to an electric actuator (116) capable of selectively positioning the second end (118) of the wrap spring (110). A controller (120) causes the electric actuator (116) to position the wrap spring (110) to provide a selective torque between the thigh and shank links (102, 104) based on a signal (212, 214, 216) produced by a sensor (164, 166, 168).

Probable Assignee: THE UNIV OF CALIFORNIA

Earliest Publication Date: 20140313



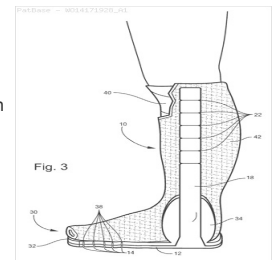
78) Family number: 57611304 (WO14171928A1)

TOTAL CONTACT CAST

Abstract: A method of constructing a total contact cast, that includes the steps of wrapping a lower leg with foam from above the malleoli to mid-calf, covering the foot and lower leg with stockinette; covering the foot and ankle with cast padding, and applying cast tape to the leg over the previously-applied foam and allowing the cast tape to harden. A foam pad and lateral and medial malleolar pads are applied to the leg section of the cast and a foot and ankle positioning device is applied to the leg, and cast tape is applied over the lower leg and foot and allowing the cast tape to harden. A walking support is applied to the foot. A foot and ankle positioner for a total contact cast is also disclosed.

Probable Assignee: BSN MEDICAL INC

Earliest Publication Date: 20141023



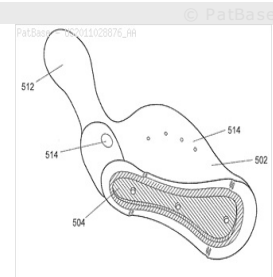
79) Family number: 44323776 (US2011028876A)

FOOT ABDUCTION APPARATUS

Abstract: Source: US2011028876A An improved foot abduction apparatus allowing movement in a horizontal and vertical plane. The embodiments allow a user to more easily manipulate the apparatus in one or both planes through the use of strategically placed pivot points. The device utilizes at least one rigid member attached to coupling devices which contain at least one pivot point. The specialized coupling devices may be selectively attached to shoe receiving member or plates which are well known in the art. Additionally the shoe receiving members are able to receive an improved shoe containing a sole member contained with a silicone boot.

Probable Assignee: MITCHELL JOHN R

Earliest Publication Date: 20100204



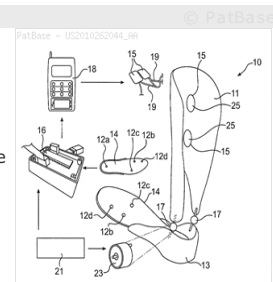
80) Family number: 41037592 (US2010262044A)

ORTHOSIS AND METHOD OF USE FOR TREATMENT AND REHABILITATION OF DROPFOOT

Abstract: Source: US2010262044A A functional electrical stimulation brace responsive to various positions of an intended wearer's foot. The device includes a plurality of sensors positioned at different locations under the intended wearer's foot to detect the current position of the foot. Outputs from the sensors are fed to a controller that uses logic to activate an electrical stimulation unit that stimulates the peroneal muscles of a patient at the appropriate times during the patient's gait. The device may also employ mechanical stabilization of the ankle in addition to the functional electrical stimulation by means of an ankle foot orthosis with a variable resistance hinge. The electrodes are embedded in fixed locations in the brace upper portion so that optimal location of the electrodes relative to the peroneal muscles is maintained every time the device is applied. Also provided is a method for assistance and rehabilitation for a patient by electrical stimulation of the peroneal muscles. In the method, the position of the foot is detected and the peroneal muscles are stimulated responsive to particular positions of the patient's foot in order to activate the muscles at the appropriate times during the patient's gait. The device also provides lateral and torsional stability by means of the ankle-foot orthosis.

Probable Assignee: DREXEL UNIV

Earliest Publication Date: 20080110



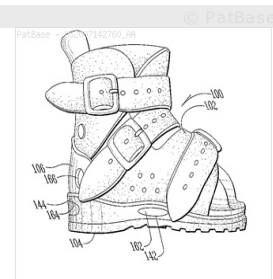
81) Family number: 34580049 (US2007142760A)

SYSTEM AND METHOD FOR CORRECTING CLUBFOOT PROBLEMS IN CHILDREN

Abstract: Source: US2007142760A A system and method for comfortably restraining a child's feet undergoing the Ponseti method for treatment of clubfeet, using a foot and ankle abduction orthosis, where the improvement includes a shoe with a single piece sole and quick release slot with an adjustable hinged heel support member, as well as having a soft pliable area around the feet and ankle support with lateral support bands to limit foot plantar flexion.

Probable Assignee: MITCHELL JOHN R

Earliest Publication Date: 20070621



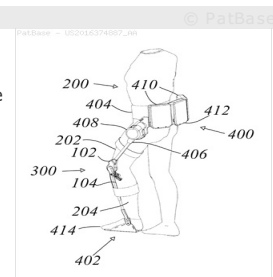
82) Family number: 64519820 (US2016374887A)

PASSIVE POWER-CONSERVATIVE ARTIFICIAL KNEE

Abstract: Source: US2016374887A A passive artificial knee comprises first and second links rotatably coupled at a knee joint, a passive compressive force generator rotatably coupled to the second link, and a release mechanism coupled to the first link. When a relative angle of the first and second links is less than a toggle angle, the release mechanism locks in a first operational mode, and the force generator compresses, resisting the flexing of the second link relative to the first link. When the relative angle is larger than the toggle angle, the force generator decompresses and encourages the flexion of said second link relative to said first link. When the force generator is substantially extended and said compressive force is substantially small, the release mechanism moves into a second operational mode, wherein the force generator neither resists nor encourages the extension and flexion of said second link from said first link.

Probable Assignee: THE UNIV OF CALIFORNIA

Earliest Publication Date: 20161229



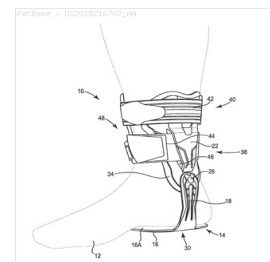
83) Family number: 56019579 (US2015216702A)

ANKLE BRACE

Abstract: Source: US2015216702A A reversible ankle brace is easy to use, is comfortable for the wearer and is reversible. Accordingly, a wearer may use the inventive ankle brace on either their left foot, to support their left ankle, or their right foot, to support their right ankle, without having to purchase more than one ankle brace.

Probable Assignee: SHOCK DOCTOR INC

Earliest Publication Date: 20140320



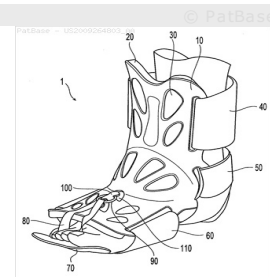
84) Family number: 43842199 (US2009264803A)

NIGHT SPLINT WITH DIGITAL DORSIFLEXION

Abstract: Source: US2009264803A A night splint for a user's foot having a frame member and a toe retainer that is releasably connected to the frame member. The toe retainer is configured to dorsiflex at least one toe of the user to allow for a dynamic stretch of the plantar fascia and to provide a low load stretch of the Achilles tendon, plantar fascia tendon, deep flexor muscles and calf muscles to relieve symptoms of plantar fasciitis.

Probable Assignee: DARCO INT INC

Earliest Publication Date: 20091021



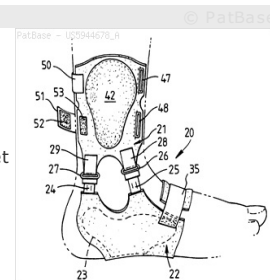
85) Family number: 29413415 (US5944678A)

ANKLE BRACE

Abstract: Source: US5944678A An ankle brace having an upper portion adapted to extend about a wearer's ankle above a malleoli. The upper portion having at least one anchor site. A foot section conforming to a portion of a sole of the wearer's foot and an elastic lateral connection extending between the foot section and the upper portion enabling normal range of movement of the ankle and becoming increasingly taut at about the limit of either the normal or a preset range of movement. The anchor site having a pad with holes to which the skin of the foot conforms so as to adhere the pad to the skin. Suction cups and adhesive may also be used alternatively or in combination to adhere the pad to the skin of the wearer's foot.

Probable Assignee: HUBBARD CRAIG J

Earliest Publication Date: 19940317



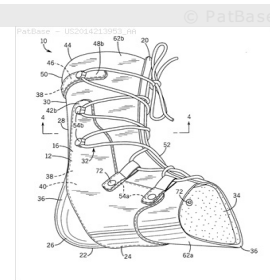
86) Family number: 57085870 (US2014213953A)

ANKLE FOOT ORTHOSIS (AFO) AND METHOD OF MAKING THE SAME

Abstract: Source: US2014213953A The present disclosure provides a custom or pre-fabricated ankle foot orthosis providing tri-planar control of the ankle foot structure. The ankle foot orthosis comprises a brace body composed of reinforcement strips and a closure mechanism.

Probable Assignee: BRACEMASTERS INT LLC

Earliest Publication Date: 20140731



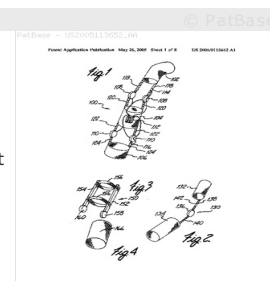
87) Family number: 15258439 (US2005113652A)

REMOTE PSYCHOLOGICAL EVALUATION

Abstract: Source: US2005113652A Instrumented orthoses with more sophisticated structures provide for coordinated support and rehabilitation of complex joints and multiple injured joints. Improved instrumented orthoses can include hinges that can rotate in multiple different planes. Particularly preferred embodiments include a shoulder brace with a hand hold and a lower extremities brace. Preferably, a control unit monitors the output of transducers used to instrument the brace. A patient can be prompted by the control unit for the performance of a variety of different monitored exercises.

Probable Assignee: IZEX TECHNOLOGIES INC

Earliest Publication Date: 20001228



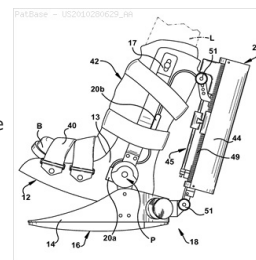
88) Family number: 43227476 (US2010280629A)

NEUROMORPHIC CONTROLLED POWERED ORTHOTIC AND PROSTHETIC SYSTEM

Abstract: Source: US2010280629A A neuromorphic controlled powered orthotic and prosthetic system and device including a custom or universal fit fixed-ankle orthosis, to stabilize or immobilize an injured lower limb or act as an ankle prosthesis, and an actuated or powered articulated false-foot connected to the fixed-ankle orthosis or the prosthesis to form an actuated articulated false-foot orthosis. Associated with or mounted on the actuated articulated false-foot, or in or on the body, are sensors for sensing the intent of the subject to move, and the movement range of the articulating false-foot or AAFO and an environmental perturbation. An actuator is used to drive the articulated false-foot orthosis. The system and device further include a controller having an electronic circuit with a biomimetic design based on knowledge of connectivity of neurons within the spinal cord of a primitive vertebrate. The system and device include an electronic circuit made from analog very large scale integrated components and discrete electronic components capable of autonomously generating cyclic voltage output. An integral power supply serves the portable controller and AAFO.

Probable Assignee: ADVENSYS LLC

Earliest Publication Date: 20090514



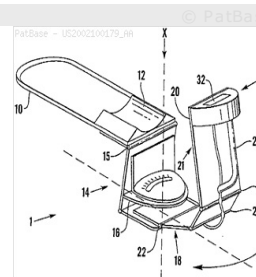
89) Family number: 28254709 (US2002100179A)

DEVICE AND METHOD FOR USE IN TAKING MOULDS OF FEET

Abstract: Source: US2002100179A A device and method is provided whereby application is made to at least part of the sole of a suitably positioned foot. The device (1) (FIGS. 1 and 2) comprises a member or plate (20) having a planar surface (21) for pressure application to the sole by a handle (28) and in one arrangement is hingedly mounted (22, 24, 26) about horizontal axes from a leg rest (10) which lies in use on a seat or couch for the patient. This enables the surface (21) to be brought against the sole and also tilted for required contact with the latter. The plate (20) is also shown mounted for angular movement about a vertical axis X for additional tilting of the surface (21). An electronic unit (30) on the plate (20) has an LCD display (32) for showing angles of tilt. With the surface (21) in appropriate contact the sole can be manually palpated or manipulated e.g. for contact of the surface (21) with metatarsal joints or points, and/or the subtalar joint palpated for the neutral condition etc. The required position of the surface (21) is maintained while moulding material such as plaster of Paris (e.g. as a bandage) is applied to the sole and foot and allowed to set in providing a mould for use in the manufacture of orthoses. Alternatively, the plate may be simply hand held for similar operation. The planar surface may have buttons each for initial contact with a metatarsal point for indicator lamp operation when the metatarsal point lifts away. The handle may operate strain gauge means of the electronic unit to indicate application pressure at the LCD display.

Probable Assignee: ROOT ANDREW C

Earliest Publication Date: 20020801



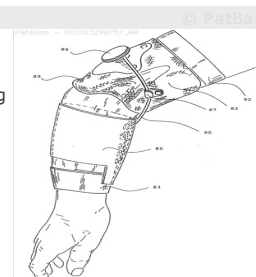
90) Family number: 51331021 (US2013296757A)

ORTHOSIS FOR MOVEMENT DAMPING

Abstract: Source: US2013296757A An orthosis is supplied to the human or animal body in order to perform a supporting or movement-guiding function. The orthosis here damps or limits the flexion or extension movement of a limb joint, such as the elbow joint, knee joint, etc., and describes the prophylactic and therapeutic use of the orthosis. The manner of its attachment and placement is described.

Probable Assignee: BAUERFEIND AG

Earliest Publication Date: 20120621



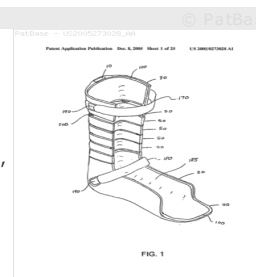
91) Family number: 32477377 (US2005273028A)

ANKLE-FOOT ORTHOSIS

Abstract: Source: US2005273028A An ankle-foot orthosis for aiding or enhancing a user's foot and ankle movement, wherein the orthosis comprises at least one strut member, a calf shell, a foot shell, and a plurality of segments. Gaps formed between adjacent segments, an uppermost segment and the calf shell, and a lowermost segment and the foot shell have gap widths, wherein gaps at a higher location have larger gap widths than those at a lower location. Therefore, in dorsiflexion, the gaps close in series from bottom to top, gradually increasing the orthosis stiffness, creating a progressive dorsiflexion stop, and decreasing the magnitude of loads transferred into the user. In plantar flexion, the gaps similarly decrease in series from bottom to top, gradually increasing the orthosis stiffness, creating a progressive plantar flexion stop, and decreasing the magnitude of loads transferred into the user.

Probable Assignee: GUILLERMO GUSTAVO WEBER

Earliest Publication Date: 20051208



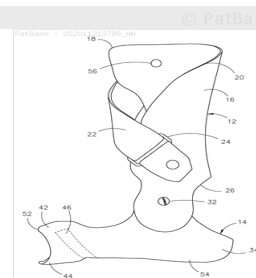
92) Family number: 50263573 (US2011319799A)

ANKLE FOOT ORTHOSIS

Abstract: Source: US2011319799A An ankle foot orthosis to be worn inside a common shoe that corrects ankle pronation by gently axially rotating and rolling the foot in the corrective direction by pulling from the shin assembly while further enhancing the corrective rolling with strategically placed posts on the medial edge of the sole. Rigidity of the foot assembly is paired with the flexibility of the shin assembly for donning a foot into the device when combined with a wide variety of common shoes. Features are also provided to A) support the longitudinal, transverse, metatarsal, and peroneal arches, thus enhancing the stability of the foot; and B) to support the plantar vault, thus enhancing the stability of the foot.

Probable Assignee: SILVA EUGENIO R

Earliest Publication Date: 20111229



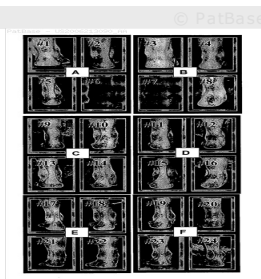
93) Family number: 33395513 (US2006213090A)

SYSTEM AND METHOD FOR FOOT CLASSIFICATION

Abstract: Source: US2006213090A The present invention relates to a method of classifying a foot into a foot type. The method includes the steps of visualizing the foot, wherein the foot is in a standing position, or in a walking or running motion, assessing a plurality of characteristics of said foot, and classifying the foot into a foot type. The classification is based on the visualization of the foot during a standing position or in a walking or running motion and is further based on the assessment of the plurality of characteristics exhibited by the foot.

Probable Assignee: NOLE ROBERTA

Earliest Publication Date: 20060928



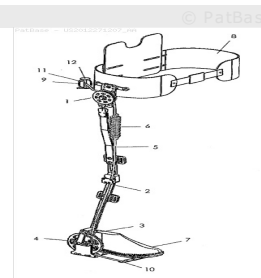
94) Family number: 51935331 (US2012271207A)

ORTHOSIS AND METHODS OF USING THE SAME

Abstract: Source: US2012271207A An orthosis includes a belt assembly, an energy storage apparatus, and an articulatable leg frame. The belt assembly is configured to be secured to a user's body. The energy storage apparatus is coupled to the belt assembly and includes a pretension adjustment device and an exotendon. The articulatable leg frame is coupleable to the belt assembly. The energy storage apparatus helps move the user's leg which is coupled to the leg frame.

Probable Assignee: CADENCE BIOMEDICAL INC

Earliest Publication Date: 20120920



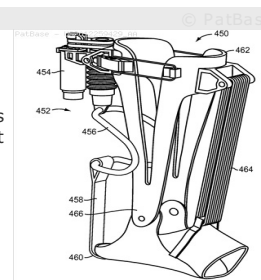
95) Family number: 51530817 (US2012259429A)

POWERED JOINT ORTHOSIS

Abstract: Source: US2012259429A A powered device augments a joint function of a human during a gait cycle using a powered actuator that supplies an augmentation torque, an impedance, or both to a joint, and a controller that modulates the augmentation torque, the impedance, and a joint equilibrium according to a phase of the gait cycle to provide at least a biomimetic response. Accordingly, the device is capable of normalizing or augmenting human biomechanical function, responsive to a wearer's activity, regardless of speed and terrain.

Probable Assignee: BIONX MEDICAL TECHNOLOGIES INC

Earliest Publication Date: 20120719



96) Family number: 60549772 (US2017049659A)

WEARABLE ROBOTIC DEVICE

Abstract: Source: US2017049659A A self-aligning, self-drawing coupler for coupling body assemblies together improves usability of a wearable robotic device. A self-contained removable actuator cassette improves the ease of manufacture and of replacing parts in the field. A tensioning retention system designed for one handed operation makes donning and doffing a wearable robotic device easier. A two-stage attachment system increases the range of sizes a wearable robotic device will fit. A removable, integrated ankle-foot orthotic system makes donning and doffing a wearable robotic device easier. An infinitely adjustable, integrated ankle-foot orthotic system increases the range of sizes a wearable robotic device will fit. A manually-removable hip-wing attachment system makes field changes easier, and protecting such a system from inadvertent disengagement during operation increases safety.

Probable Assignee: PARKER HANNIFIN CORP

Earliest Publication Date: 20151008



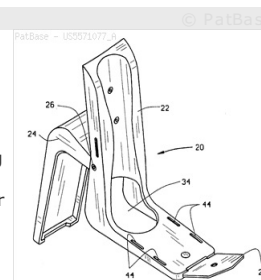
97) Family number: 8646806 (US5571077A)

SELF-SUPPORTING FOOT ORTHOSIS WITH PIVOTALLY MOUNTED COVER

Abstract: Source: US5571077A An ankle/foot orthosis is provided including a generally "L" shaped frame secured to a person's ankle region with Velcro TM straps or tape. The frame includes an aperture located over the person's heel such that this ulcer prominent area is unobstructed by the frame. A cover, pivotally mounted to the frame, may be positioned over the aperture thereby protecting the heel from inadvertent contact. The cover may also be opened thereby providing access to the heel and enabling treatment of any ulcerous lesions on the heel while the frame is secured to the ankle region. The cover may also be latched with a cover latch in an over-center open position to thereby provide a support for elevating the foot above a supporting surface.

Probable Assignee: THERAPY CONCEPTS INC

Earliest Publication Date: 19960425



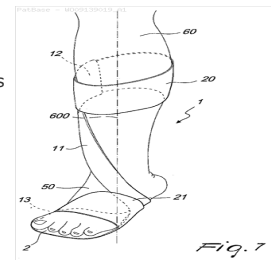
98) Family number: 42939912 (WO09139019A1)

ANKLE FOOT ORTHOSIS FOR COUNTERACTING THE SUPINATION/PRONATION OF THE FOOT

Abstract: Ankle foot orthosis for counteracting the supination/pronation of the foot, comprising a sole-piece which can be associated with the sole of a foot, and a medial/lateral gripping means which is joined to the sole-piece and engages the (eg. The point where said medial/lateral gripping means are joined to the sole-piece and their portion which is engaged with said leg are situated on opposite sides to each other relative to the longitudinal axis of the leg. The orthosis also comprises a restrain means associated with the sole- piece.

Probable Assignee: DOLCETTA DIEGO

Earliest Publication Date: 20091116



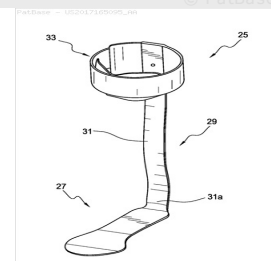
99) Family number: 66073772 (US2017165095A)

ORTHOTIC SYSTEM

Abstract: Source: US2017165095A An orthosis includes a footplate having a heel portion, a midfoot portion, and a longitudinal axis extending between the heel and midfoot portions. A first deflection zone is defined along a length of the footplate anterior of the heel portion and through which the footplate is arranged to flex during gait to accommodate dorsiflexion of a foot of a user positioned on the footplate. At least one strut is connected to the heel portion of the footplate and extends upwardly therefrom and a connecting portion connects the at least one strut to the heel portion.

Probable Assignee: OSSUR ICELAND EHF

Earliest Publication Date: 20170615



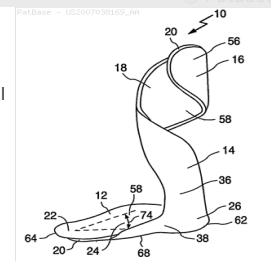
100) Family number: 31830006 (US2007038169A)

LOWER LEG ORTHOSIS

Abstract: Source: US2007038169A An orthosis (10) for the lower leg of a wearer has a unitary body with a generally spiral shaped lower leg portion (14) and a foot plate portion (12). The orthosis is configured to allow simultaneous control of the knee and ankle-foot complex during locomotion.

Probable Assignee: DANKMEYER INC

Earliest Publication Date: 20050421



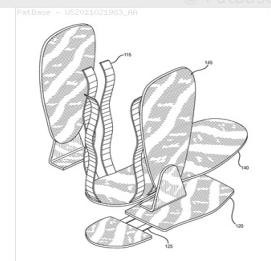
101) Family number: 48204545 (US2011021963A)

ANKLE BRACE AND METHOD OF USING SAME

Abstract: Source: US2011021963A An ankle brace includes a foot plate comprising a heel portion having means for tilting the ankle brace to adjust a hindfoot varus or valgus position; at least one upright support connected to the foot plate; and an arch support attachable to a top surface of the foot plate.

Probable Assignee: N AND G BRACING INNOVATIONS LLC

Earliest Publication Date: 20110127



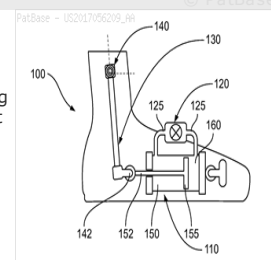
102) Family number: 65074673 (US2017056209A)

QUASI PASSIVE ASSISTIVE DEVICE

Abstract: Source: US2017056209A Implementations of a quasi-passive assistive device are disclosed. Such a device may comprise a spring mechanism that increases stiffness similar to a biological ankle. In one implementation, the spring mechanism may comprise a piston, valve, springs, or other elements to match a biological stiffness profile similar to that of a biological ankle. In one implementation, an apparatus for an artificial ankle is disclosed, comprising a piston coupled to a spring and the piston connected to a valve. The spring and the piston may store energy during dorsiflexion of the ankle and the spring and the piston release energy during plantarflexion of the ankle. The piston may store and release energy through the use of the valve.

Probable Assignee: CHICAGO REHABILITATION INST

Earliest Publication Date: 20170302



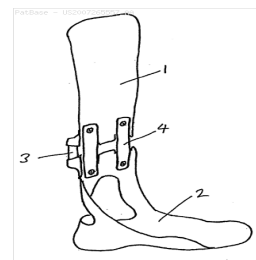
103) Family number: 40762223 (US2007265557A)

ARTICULATED ORTHOSIS PROVIDING LIFT SUPPORT

Abstract: Source: US2007265557A An orthosis having at least one adjustable joint for articulating two hinged parts of the orthosis, the joint comprises a tensor for carrying the load applied between the two hinged parts. Compression surfaces coupled to the hinged parts are constructed to apply compression forces to a compression element when the angle between the two parts widens. Preferably the compression element comprises a block of resilient material. The joint allows adjustability of the unloaded angle between the hinged parts by varying the dimensions of the block, while selecting blocks having different compressional characteristics such as modulus of elasticity allows varying the degree of resistance to widening the angle between the two hinged parts. The joint is particularly advantageous in constructing an articulating leg brace.

Probable Assignee: ENGELMAN IAN K

Earliest Publication Date: 20060824



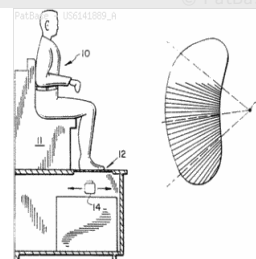
104) Family number: 12648619 (US6141889A)

FOOT SUPPORT AND METHOD (CIP VERSION)

Abstract: Source: US6141889A A foot support is prepared based upon a scan of the foot. The foot support has radial ridges and grooves on its upper and lower sections. The ridges and grooves converge at an imaginary center outside the foot print. The surface contour of the support do not duplicate the topography of the foot, but perform prescription manipulations.

Probable Assignee: BAUM IRA M

Earliest Publication Date: 20001107



105) Family number: 48867442 (US2014288475A)

ANKLE-FOOT ORTHOSES

Abstract: Source: US2014288475A An ankle-foot orthosis for resisting plantarflexion of a patient's foot, the orthosis comprising: a first resiliently flexible part (1) that comprises a first portion (3) and a second portion (5) set at an angle to said first portion (3), said first portion (3) being configured to lie against and along a portion of a patient's shin in use, and said second portion (5) being configured to extend partway along a dorsal aspect of the patient's foot in use, said first part (1) further comprising means (9) operable to secure said first portion (3) against the patient's shin; and a second resiliently flexible part (7) that is separate from but co-operates with said first part (1) in use, said second part (7) comprising a tubular body that is configured and arranged to fit around the patient's foot and to overlap at least part of the second portion (5) of said first part (1); wherein said first (1) and second parts (7) co-operate to provide a resistance to flexure suitable for correcting the plantarflexion experienced by the patient.

Probable Assignee: DORSET ORTHOPAEDIC CO LTD

Earliest Publication Date: 20120907



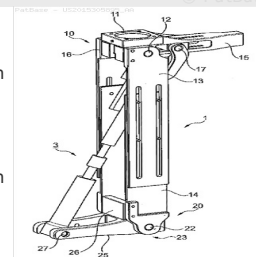
106) Family number: 56528893 (US2015305895A)

ORTHOPEDIC DEVICE

Abstract: Source: US2015305895A The invention relates to an orthopaedic device for the orthotic or prosthetic provision of a patient with •a knee joint (10), which has a proximal upper part (11) and a distal lower part (13) arranged pivotably thereon, •an ankle joint (20), •a pivoted foot part (23) which can be fastened distally to the ankle joint (20), and •a shin part (14) arranged between the ankle joint (20) and the knee joint (10), wherein the upper part (11) of the knee joint (10) or a thigh part fastened thereto that can be attached to the patient's body is coupled with the foot part (23) by means of a force transfer device (3; 30, 31, 32, 35; 40, 41, 42), which causes a plantar flexion of the foot part (23) when a knee is flexed.

Probable Assignee: OTTO BOCK HEALTHCARE GMBH

Earliest Publication Date: 20140528



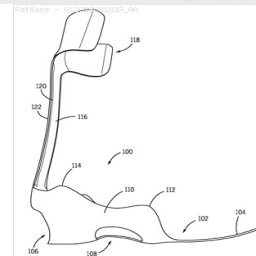
107) Family number: 61906111 (US2016081839A)

ANKLE-FOOT ORTHOSIS AND METHOD OF MANUFACTURE

Abstract: Source: US2016081839A An ankle-foot orthosis for a lower leg, ankle, and foot of a patient, the ankle-foot orthosis including: a foot plate; a calf-cuff member; and a strut member extending between the foot plate and the calf-cuff member, the strut member coupling to a posterior side of the foot plate and the calf-cuff member, the strut member being formed from layers of carbon fiber and at least one layer of a thermoplastic material.

Probable Assignee: SPRINGSTEP AFO INC

Earliest Publication Date: 20160324



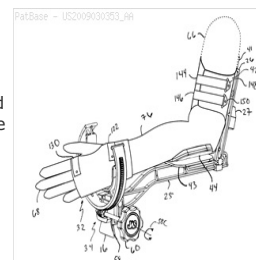
108) Family number: 42859362 (US2009030353A)

ORTHOSIS APPARATUS AND METHOD OF USING AN ORTHOSIS APPARATUS

Abstract: Source: US2009030353A The present invention provides a new and improved orthosis for use in effecting relative movement between bones in an arm of a patient. The apparatus includes a lower cuff gripping distal bone, such as a wrist, and an upper cuff gripping a proximal bone, such as an upper arm. The lower cuff is secured in a rotatable drive assembly substantially coincident to a longitudinal axis of a medial bone, such as the forearm, during rotational distal adjustment. The angle between the forearm and the upper arm is adjustable and can be securely fixed at a desired angle. The rotation of the rotatable drive assembly effectuates the pronation and supination of the hand and wrist relative to the patient's forearm. The orthosis of the present invention can be disassembled with interchanging parts substituted depending on the patient's needs.

Probable Assignee: BONUTTI RESEARCH INC

Earliest Publication Date: 20090129



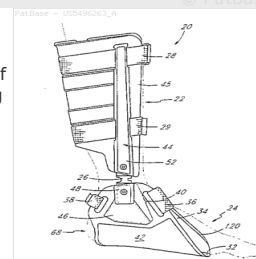
109) Family number: 8361230 (US5496263A)

ANKLE STABILIZATION SYSTEM

Abstract: Source: US5496263A A system for stabilizing the injured ankle of a user has an ankle brace with an upper calf member hingedly connected to a lower foot member, and a plurality of reinforced areas for strengthening and supporting a region around the talus bone. The reinforced areas are located above and below the hinge, or in the proximate vicinity of the ankle and talus bone. The hinge is located on an outwardly bowed cup-shaped portion of the ankle brace for comfortably receiving the malleoli of the user. The upper member includes a pair of arcuate elements slidable with respect to one another to adjust the opening formed thereby for various calf sizes. The lower member is designed to reduce stiffness in areas such as the front of the foot. Several straps are provided to securely couple the upper member and lower member to the user. Inner pads and tapered edges of the structural members reduce abrasion of the ankle brace against the user.

Probable Assignee: ASCENT TECH GROUP INC

Earliest Publication Date: 19930415



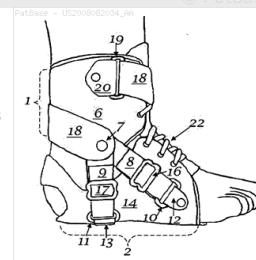
110) Family number: 41670725 (US2008082034A)

ANKLE DEROTATION AND SUBTALAR STABILIZATION ORTHOSIS

Abstract: Source: US2008082034A The invention is an ankle derotation and subtalar stabilization system that incorporates a pivoting adjustable-tension oblique tether strap that is anchored to both a forefoot component and leg component, and that is contiguous with pivoting adjustable-tension derotation strap that passes behind the leg and that is secured to a leg component. The system restrains oppositely directed rotation between the foot and the leg, and can actually alter the normal biochemical relationship in a manner that produces foot rotation in a direction opposite to that which is normally coupled with leg rotation, without restriction of upward and downward foot movement. The primary application for the system is restraint of excessive subtalar joint inversion, leg external rotation, and anterolateral rotatory displacement of the talus, but it can also be configured to restrain subtalar eversion and leg internal rotation through its incorporation into the structure of an ankle orthosis or shoe.

Probable Assignee: WILKERSON GARY BLAINE

Earliest Publication Date: 20080403



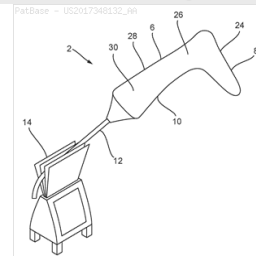
111) Family number: 63118320 (US2017348132A)

ORTHOSIS

Abstract: Source: US2017348132A An orthosis comprises a first portion which comprises a polymer reinforced with a plurality of first fibres, and a second portion which is disposed around at least a section of a peripheral edge of the orthosis which comprises a polymer reinforced with a plurality of second fibres. The first portion has a higher tensile strength and is harder than the second portion.

Probable Assignee: ORTHOTIC COMPOSITES LTD

Earliest Publication Date: 20171207



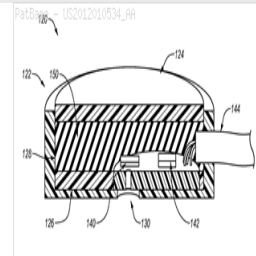
112) Family number: 50475299 (US2012010534A)

SYSTEMS, DEVICES, AND METHODS FOR MONITORING AN UNDER FOOT LOAD PROFILE OF A TIBIAL FRACTURE PATIENT DURING A PERIOD OF PARTIAL WEIGHT BEARING

Abstract: Source: US2012010534A Systems, devices, and methods for measuring an under foot load profile of a tibial fracture patient during a period of partial weight bearing are described. The system may include a walking boot cast. A housing, including an inner surface and an upper surface that cooperate to define an inner cavity, may be oriented with respect to a patient's tibia. The upper surface is slidably received within the inner cavity in a piston and cylinder configuration. The system may include a pressure sensor configured to monitor the load profile of a patient during the desired period of partial weight bearing. The pressure sensor may be located below the upper surface. The system may include a noncompressible force transmitter positioned within the inner cavity and at least partially encapsulating an upper portion of the pressure sensor to transmit pressure within the housing to the pressure sensor.

Probable Assignee: OF UTAH RESEARCH FOUNDATION UNIV

Earliest Publication Date: 20120112



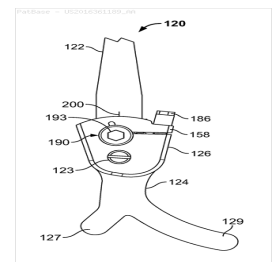
113) Family number: 64368164 (US2016361189A)

TRIPLE ACTION ORTHOTIC ANKLE JOINT AND METHODS

Abstract: Source: US2016361189A An improved ankle joint device is provided. In one aspect, the device provides two stages of dorsiflexion resistance biasing a first splint member (or other attachment member that follows the angular displacement of a wearer's lower leg or foot) against dorsiflexion movement within an active angular range of dorsiflexion, corresponding to second and third rocker phases of a wearer's gait; in addition to a phase of plantarflexion resistance biasing the first splint/attachment member against plantarflexion movement within an active angular range of plantarflexion, corresponding to a first rocker phase. In another aspect, an equilibrium or neutral angle between a wearer's foot and tibia at which the device applies no biasing forces is adjustable by adjusting the angle at which a second splint/attachment member is fixed relative to a joint body. Typically, the second splint member is secured to a wearer's lower leg, and the first splint member is secured to a wearer's foot.

Probable Assignee: BECKER ORTHOPEDIC APPLIANCE CO

Earliest Publication Date: 20161215



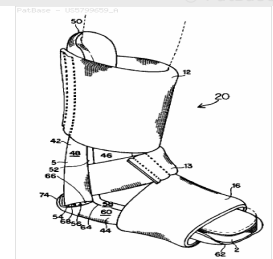
114) Family number: 11111622 (US5799659A)

ANKLE FOOT ORTHOSIS NIGHT SPLINT WITH ORTHOWEDGE

Abstract: Source: US5799659A A low cost orthosis for the treatment of foot and ankle conditions including plantar fasciitis and tendonitis, the orthosis is a rigid, molded shell manufactured in a variety of incremental sizes, having a generally U-shaped cross-sectional configuration and a flat foot bed, covered by a soft fabric covering, and using a removable and interchangeable foot bed wedge insert permitting the angle of dorsiflexion, plantarflexion, inversion and eversion to be varied.

Probable Assignee: STANO WILLIAM S

Earliest Publication Date: 19980901



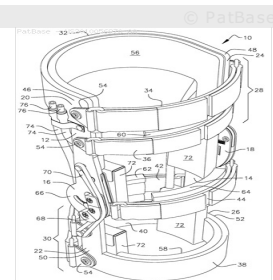
115) Family number: 44451832 (US2010056970A)

KNEE ORTHOSIS

Abstract: Source: US2010056970A A knee orthosis device provides medial, lateral, and rotational control of a knee joint. The novel knee orthosis device stabilizes an injured or surgically repaired, or a weakened knee joint having a neurological disability, which causes instability therein, by applying adjustable corrective and therapeutic forces, which operate to stabilize and protect the knee as well as to correct abnormal gait and to rehabilitate the knee joint and surrounding muscles above and below the knee by encouraging and recruiting said muscles to operate again more normally through the use of a dynamic swing assist mechanism. The knee orthosis also provides dynamically conformable thigh and shin cuff circumferential band systems in combination with a multitude of other elements that conform to the constant dimensional changes of the muscle groups that are surrounded by the knee orthosis device during ambulatory or athletic motion.

Probable Assignee: MEDICAL ALLIANCE SA

Earliest Publication Date: 20100304



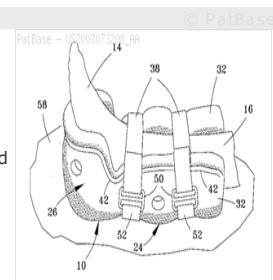
116) Family number: 34350942 (US2007073208A)

HEEL-SUPPORTING PROTECTIVE BOOT

Abstract: Source: US2007073208A A heel-supporting boot capable of supporting a leg of a person in a supine reclining position, such as a bedridden patient, to reduce the risk of bed sores, foot drop, etc. The boot includes a flexible and compressible body having leg and forefoot portions, a continuous cavity within the leg and forefoot portions, an anterior opening to permit a patient's foot and leg to pass therethrough into the cavity, oppositely-disposed lateral regions defined by the leg portion and separated by the anterior opening, and an adjustable closing feature for closing the anterior opening with the lateral regions. A stitch pattern is disposed along at least the forefoot rim, and preferably also the lateral rims, bounding the anterior opening. The stitch pattern is sufficiently close to the forefoot rim and optionally the lateral rims to structurally reinforce the forefoot rim and inhibit elastic and plastic deformation of the forefoot portion.

Probable Assignee: DM SYSTEMS INC

Earliest Publication Date: 20070329



117) Family number: 57613964 (US2014316316A)

TOTAL CONTACT CAST

Abstract: Source: US2014316316A A method of constructing a total contact cast, that includes the steps of wrapping a lower leg with foam from above the malleoli to mid-calf, covering the foot and lower leg with stockinette; covering the foot and ankle with cast padding, and applying cast tape to the leg over the previously-applied foam and allowing the cast tape to harden. A foam pad and lateral and medial malleolar pads are applied to the leg section of the cast and a foot and ankle positioning device is applied to the leg, and cast tape is applied over the lower leg and foot and allowing the cast tape to harden. A walking support is applied to the foot. A foot and ankle positioner for a total contact cast is also disclosed.

Probable Assignee: BSN MEDICAL INC

Earliest Publication Date: 20141023



118) Family number: 51085012 (US2012116282A)

MADE-TO-MEASURE ORTHOSIS FOR COMPRESSION/CONTAINMENT, FOR REINFORCING THE

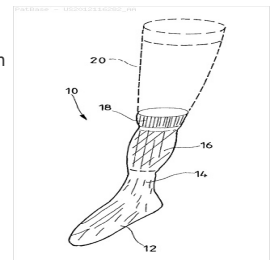
PatBase

MUSCULO-APONEUROTIC PUMP OF THE CALF

Abstract: Source: US2012116282A The orthosis comprises an elastic compressive distal portion extending upwards from the ankle and associated with an adjoining containment proximal portion covering a region of the calf extending between the level of the junction point between the Achilles tendon and the calf muscle and the level situated beneath the tibial tuberosity. This containment proximal portion is an essentially non-elastic deformable tubular portion made by knitting with a thermoformable yarn, and it is knitted continuously with the elastic compressive distal portion.

Probable Assignee: INNOTHERA TOPIN INT

Earliest Publication Date: 20120510



119) Family number: 22280751 (US4446856A)

ORTHOTIC DEVICE

Abstract: Source: US4446856A An orthotic device that includes a boot for immobilizing the ankle and foot against relative movement and holds them in a neutral position of maximal joint congruency while providing a sole having a platform for causing the foot to describe a heel to toe rocking movement such that the leg of the user is flexed at the knee and a pivoting motion is induced at the hip joint during walking.

Probable Assignee: LANGER BIOMECHANICS GROUP INC

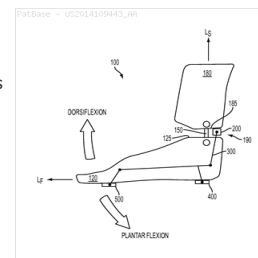
Earliest Publication Date: 19830623



Abstract: Source: US2014109443A Devices, methods, and systems for an articulated ankle-foot orthosis with a selectively retractable stop are presented. The orthosis includes at least one of a foot mold, a shank mold, a forefoot sensor, a heel sensor, a stop, and a connecting mechanism. The stop is positioned between the foot mold and the shank mold, and the stop is selectively retractable between a closed position and a generally opposing open position that allows plantar flexion of the foot mold during the stance phase of a typical human gait cycle. The connecting mechanism is configured to move the stop from the closed position to the open position in response to a signal from the heel sensor indicating a heel-strike event. The connecting mechanism is also configured to move the stop from the open position back to the closed position in response to a signal from the forefoot sensor indicating a toe-off event.

Probable Assignee: GEORGIA STATE UNIV RESEARCH FOUNDATION INC

Earliest Publication Date: 20140424



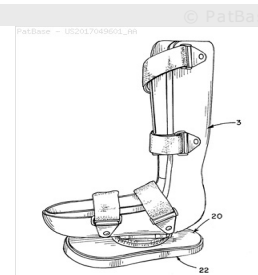
124) Family number: 64975394 (US2017049601A)

ADJUSTABLE WALKING SOLE FOR AN ORTHOSIS

Abstract: Source: US2017049601A An ankle/foot orthosis includes an orthosis boot that is attached to an adjuster unit that positions a sole offset from the orthosis boot. The adjuster unit provides angular adjustments of an inclination of the sole relative to the orthosis boot to accommodate a specific condition of the user's foot by rotation of wedged rotary plates to provide corrective alignment of the user's foot relative to a support surface during walking.

Probable Assignee: ORTHOMERICA PRODUCTS INC

Earliest Publication Date: 20170223



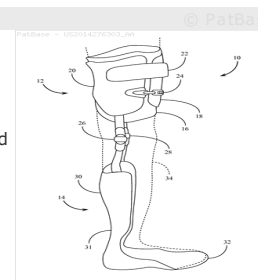
125) Family number: 57425947 (US2014276303A)

ORTHOTIC SYSTEM AND METHOD UTILIZING HYDROSTATIC COMPRESSION OF SOFT TISSUE TO UNLOAD THE KNEE AND/OR HEEL UP TO 100 PERCENT

Abstract: Source: US2014276303A An orthotic system and method for a knee ankle foot orthosis (KAFO) or ankle foot orthosis (AFO) capable of removing up to 100 percent of the weight-bearing forces at the knee and tibia and/or ankle and heel. The KAFO and AFO of the present invention utilize a fully adjustable compound closure system and compression liner to circumferentially compress the soft tissue of the thigh or calf to reduce loading forces on the leg at all points distal to the distal border of the compression liner. The degree of reduction in weight-bearing is adjusted by applying the orthosis with the heel of the individual raised above the foot platform, tightening the compound closure system, allowing the tissue to drop down within the compression liner, assessing the position of the heel above the foot platform, and adjusting the compound closure system to maintain the desired degree of elevation of the heel above the foot platform.

Probable Assignee: LEOS ALEXANDER N

Earliest Publication Date: 20140918



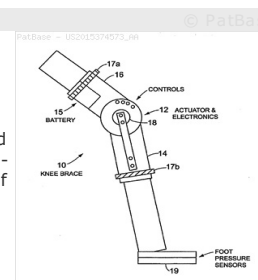
126) Family number: 57467889 (US2015374573A)

ORTHOTIC DEVICE DRIVE SYSTEM AND METHOD

Abstract: Source: US2015374573A An orthosis includes a first portion and a second portion configured to attach on opposite sides of a joint. An actuator is configured to apply a force between the first and second portions. The actuator includes a first spool and a second spool rotatably mounted to the first portion. An output pulley is mounted to the second portion. A belt has a first end wrapped around the first spool, a second end wrapped around the second spool, and a mid-portion wrapped around the output pulley. The actuator is configured to rotate the first and second spools. The rotation of the first spool pulls the belt a given length, and the rotation of the second spool feeds the belt less than the given length, so as to pull the output pulley towards the first portion to pull the second portion towards the first portion.

Probable Assignee: ALTERG INC

Earliest Publication Date: 20140925



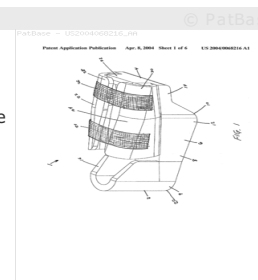
127) Family number: 30460399 (US2004068216A)

LOW COST ORTHOSIS FOR TOE INJURIES

Abstract: Source: US2004068216A A low-cost orthosis for the treatment of toe injuries is disclosed. The orthosis is a bilateral, monolithic structure molded from polymeric foam material and having an upper portion adapted to surround the heel, dorsal portions, and toes of a foot, and a lower portion forming an outsole. The outsole has a wedge-shaped, proximal portion which elevates the forefoot, the proximal portion terminating in a cylindrical radius positioned beneath the ball of a user's foot. The distal portion of the outsole is recessed so that during use the orthosis can pivot on the fulcrum formed by the previously described radius, as would occur during ambulation, without the distal end of the orthosis contacting the floor. An insole, formed by the upper surfaces of the outsole of the orthosis is generally planar with a distally positioned recess in the area of a user's toes. The orthosis disclosed mimics true physiology so as to allow a heel strike, pivoting on the ball of the foot, and launching from the ball of the foot while preventing weight-bearing flexion and extension of the toes and protecting the toes from further injury.

Probable Assignee: WARDEN MATHEW FERRY

Earliest Publication Date: 20040408



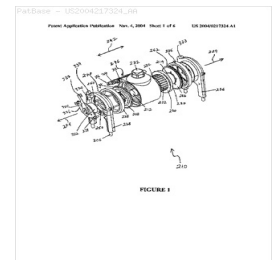
128) Family number: 32431255 (US2004217324A)

MAGNETORHEOLOGICAL FLUID COMPOSITIONS AND PROSTHETIC KNEES UTILIZING SAME

Abstract: Source: US2004217324A The present invention relates in one embodiment to magnetorheological fluids utilized in prosthetic joints in general and, in particular, to magnetorheological fluids utilized in controllable braking systems for prosthetic knee joints. Preferred magnetorheological fluids of the present invention comprises polarizable iron particles, a carrier fluid, and optionally an additive. Preferred additives include, but are not limited to functionalized carrier fluids as well as derivatized fluoropolymers. Preferred carrier fluids include, but are not limited to, perfluorinated polyethers.

Probable Assignee: OSSUR HF

Earliest Publication Date: 20041104



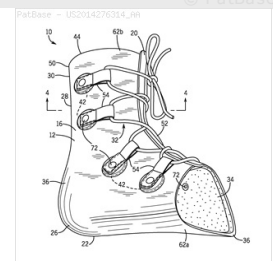
129) Family number: 57427608 (US2014276314A)

ANKLE FOOT ORTHOSIS (AFO) AND METHOD OF MAKING THE SAME

Abstract: Source: US2014276314A The present disclosure provides a custom or pre-fabricated ankle foot orthosis providing tri-planar control of the ankle foot structure. The ankle foot orthosis comprises a brace body comprising a polyolefin elastomeric material, foam material and a closure mechanism.

Probable Assignee: BRACEMASTERS INT LLC

Earliest Publication Date: 20140918



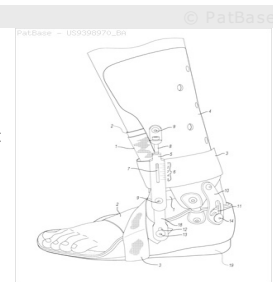
130) Family number: 62987712 (US9398970B)

ROOSTER BOOT ANKLE FOOT ORTHOSIS

Abstract: Source: US9398970B The Rooster Boot is a lightweight therapeutic ankle foot orthosis designed for increasing the range of motion and correcting alignment of the foot and ankle. The dynamic orthosis creates a variable load stretch at the ankle to prevent contracture and shortening of the heel cord. The orthosis is utilized during rest, sleep, and weight bearing therapy. This dynamic design has been of particular benefit to children with spasticity or weakening muscles, as evidenced in cerebral palsy.

Probable Assignee: MEYER GRANT C

Earliest Publication Date: 20160726



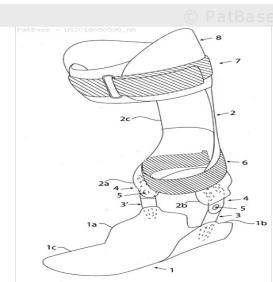
131) Family number: 57610313 (US2016058595A)

SHOE-INTERNAL BRACE FOR DROP FOOT AND SIMILAR CONDITIONS

Abstract: Source: US2016058595A An orthopaedic brace for drop foot correction comprising a foot base portion (1) pivotally connected to a calf covering portion (2) by means of sole-raising hinge assemblies, comprising metallic strip members (3,3') with openings (31) and metallic plate members preferably with openings (41), wherein members (3,3') are fixedly embedded within flanges (1a,1b) of the foot base portion (1) and members (4) are fixedly embedded within flanges (2a,2b) of the calf covering portion (2) during the injection thermosetting process of manufacturing the brace, as openings (31,41) are filled with plastic raw material. The brace is provided in distinct sizes as a ready to wear product and comprises a strap fastener profile (6) that securely fastens the calf covering portion onto the leg of the user and provides correction varus/valgus type structural misalignment of the foot of the user when passed through an aperture (20) located proximately the bottom of the calf covering portion.

Probable Assignee: TSITOURAS ANDREAS

Earliest Publication Date: 20141023



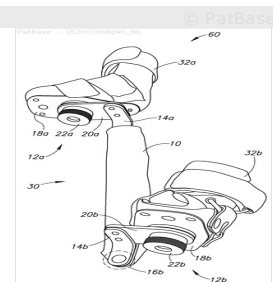
132) Family number: 34394171 (US2007088240A)

ORTHOTIC CLUBFOOT DEVICE

Abstract: Source: US2007088240A The present invention relates to an orthotic device wherein the patient's feet are maintained at a desired angle while allowing the patient to move in an otherwise normal manner and preventing blister formation. The orthotic device generally comprises an orthotic splint assembly, two ankle foot orthosis and two custom molded inserts secured to the ankle foot orthosis.

Probable Assignee: WASHINGTON UNIV IN ST LOUIS

Earliest Publication Date: 20070419



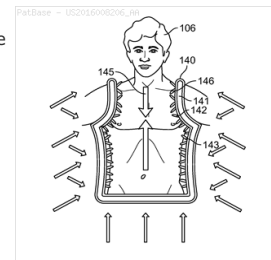
133) Family number: 57369060 (US2016008206A)

SYSTEMS AND METHODS FOR EXERTING FORCE ON BODIES

Abstract: Source: US2016008206A Systems and methods for exerting forces on a body, including a support structure defining a space and a plurality of surface contacting units that are configured to exert force upon the body, such that the weight is distributed away from the primary weight bearing regions to non-weight bearing regions of the body, or vice versa, without exerting significant shear or frictional forces on surfaces of the body. The systems and methods may be used to exert forces to cause fluid shift in different compartments of the body. Applications include treatment of various disease conditions including pressure ulcers, heart failure, high blood pressure, preeclampsia, osteoporosis, injuries of spine and to slow microgravity-induced bone and muscle loss. The systems and methods may be used to simulate gravity, weightlessness or buoyancy, in rehabilitation medicine. The system may include a chair, bed, a wearable suit or an exoskeleton.

Probable Assignee: DEVANABOYINA UDAYA SANKAR

Earliest Publication Date: 20140912



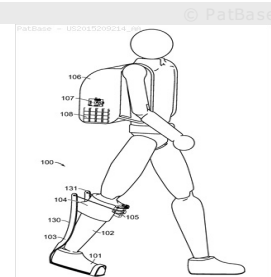
134) Family number: 59608532 (US2015209214A)

OPTIMAL DESIGN OF A LOWER LIMB EXOSKELETON OR ORTHOSIS

Abstract: Source: US2015209214A A link extends between a distal member and a proximal member of a wearable device, such as an exoskeleton, orthosis or prosthesis for a human lower limb. One or other of the distal member and the proximal member includes a crossing member. The link extends from the crossing member of the distal member or the proximal member, to the other of the distal member or the proximal member. Actuation of the link translates to a force at the distal or proximal member that is normal to a major longitudinal axis extending through the distal and proximal members. In one embodiment, a sliding link of a device configured for use with a human joint tracks two degrees of freedom of the joint.

Probable Assignee: MASSACHUSETTS INST OF TECHNOLOGY

Earliest Publication Date: 20150625



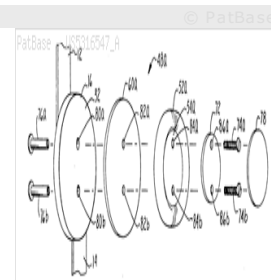
135) Family number: 11589226 (US5316547A)

ORTHOPEDIC BRACE HAVING PNEUMATIC PADS

Abstract: Source: US5316547A An orthopedic brace is provided having one or more pads mounted thereon to provide secure and comfortable support for the brace when positioned against the body of a user. Each pad includes at least one pneumatic bladder, formed from a flexible skin permanently sealed to enclose a volume of gas therein. In a first embodiment, the brace has a point pad mounted thereon which is configured to conform to a surface of the body overlying a skeletal protrusion. The point pad contains a bladder having a substantially closed-loop configuration circumscribing the skeletal protrusion and having an interior opening to receive the protrusion. In a second embodiment, the brace has an areal pad mounted thereon which is configured to conform to a surface of the body overlying a curved, but relatively level, skeletal structure or soft tissue. The areal pad is a plurality of interconnected gas-inflated chambers that are maintained in fluid isolation from one another by flexible seams positioned between adjacent chambers. Alternatively, the areal pad is a bladder having a plurality of interconnected gas-inflated segments that are in fluid communication with one another via flow channels provided through the flexible seams positioned between adjacent segments. In either case, the flexible seams act as a pivot enabling articulation of the pad.

Probable Assignee: DJO LLC

Earliest Publication Date: 19940531



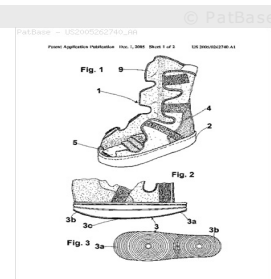
136) Family number: 32385945 (US2005262740A)

FOOTWEAR ORTHOSIS

Abstract: Source: US2005262740A A footwear orthosis including a sole member having a tread surface and an inner surface, and a partly open upper member designed to be anchored to the sole member and arranged removably to secure a user's foot thereto, wherein the tread surface is substantially uninterruptedly flat and at least partly outwardly convex.

Probable Assignee: SALVATELLI SRL

Earliest Publication Date: 20040806

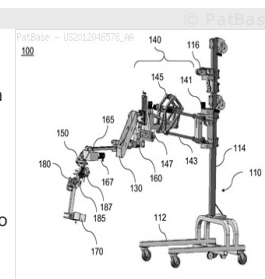


POWERED ORTHOSIS SYSTEMS AND METHODS

Abstract: Source: US2012046578A Powered orthosis systems and methods are disclosed. An orthosis system includes a frame, a trunk brace adapted to be secured to a user's trunk, a trunk joint coupling the trunk brace to the frame, an upper leg brace adapted to be secured to a user's upper leg, a hip joint coupling the upper leg brace to the trunk brace, a lower leg brace adapted to be secured to a user's lower leg, a knee joint coupling the lower leg brace to the upper leg brace, and a controller. The hip joint or knee joint includes an actuator operable to rotate the adjacent braces relative to each other. The controller is programmed to operate the actuator. An orthosis method includes securing a user to the orthosis system, enabling the user to walk while secured to the orthosis system, and actuating the hip or knee actuator to rotate the adjacent braces.

Probable Assignee: AGRAWAL SUNIL K

Earliest Publication Date: 20120223

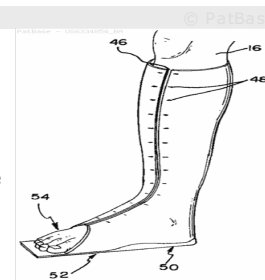


DYNAMIC RESPONSE ANKLE-FOOT ORTHOSIS

Abstract: Source: US6334854B An orthotic device developed and customized to control the desired movement of the patient's defective lower limb. The device incorporates a footplate made of a rubber-like elastomeric material and a proximal segment that encompasses the foot at the metatarsophalangeal joints and the shin portion of the leg. This proximal segment is made of a rubber-like elastomeric material laminated into multiple layers of fabric throughout the proximal segment. Additional strips of fabric are positioned within the proximal segment of the device to limit or promote certain motions within the foot and ankle. This device incorporates a continuous closure from the foot to the proximal segment, creating total contact and hydrostatic containment of the foot and lower leg. The combination of total contact, hydrostatic compression, the multiple layers of fabric with strategically placed strips of fabric laminated with the elastomeric material and the molded footplate combine to provide limited and graded motion of the foot and ankle complex during the gait cycle of ambulation. Much like taping the foot and ankle, this device applies tensile forces to the foot and ankle to control motion. This system applies dynamic corrective forces to the foot and ankle complex during different events of the gait cycle to promote a more normal gait pattern.

Probable Assignee: DAVIS LOCKE HENDERSON

Earliest Publication Date: 20020101



ANKLE FOOT TENSIONED ORTHOSIS

Abstract: Source: US2016135978A An orthosis for supporting a human ankle joint is described. The orthosis may include a foot section and a tibial section, with a tensioning mechanism configured to adjust the tension between the foot section and the tibial section in order to change the range of motion of the joint. Methods for assembling and using an orthosis are also described.

Probable Assignee: REHABILITATION INST OF CHICAGO

Earliest Publication Date: 20160519

