

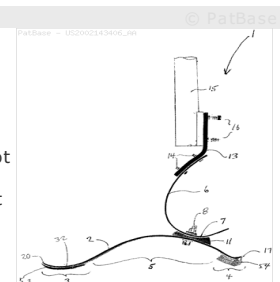
1) Family number: 43234206 (US2002143406A)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE

Abstract: Source: US2002143406A A prosthetic foot incorporate a foot keel and a calf shank connected to the foot keel to form an ankle joint area of the prosthetic foot. The foot keel has forefoot and hindfoot portions and a relatively long midfoot portion extending between and upwardly arched from the forefoot and midfoot portions. The calf shank includes a downward convexly curved lower end which is attached at a portion thereof to the keel midfoot portion by way of an adjustable fastener arrangement. The foot has biplanar motion capability and, in a preferred form, also has high low dynamic response characteristics. The adjustable fastener arrangement permits adjustment of the alignment of the calf shank and the foot keel with respect to one another in the longitudinal direction of the foot keel for tuning the performance of the prosthetic foot.

Probable Assignee: BIOQUEST PROSTHETICS LLC

Earliest Publication Date: 20021003



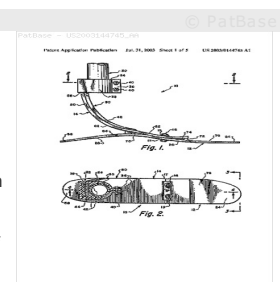
2) Family number: 30455773 (US2003144745A)

PROSTHETIC FOOT HAVING CURVED ANKLE SECTION

Abstract: Source: US2003144745A Abstract of Disclosure A prosthetic foot characterized by a foot portion and an ankle portion. The foot portion and ankle portion may be fabricated from polymer impregnated and encapsulated laminates, including such laminates as carbon fibers and/or fiberglass or synthetic fibers such as Kevlar. The ankle portion may include an upper end positioned near or below about the location of a natural human ankle joint, a lower end, and an elongated intermediate section at least a portion of which curves downward and forward between the upper end and the lower end. The foot portion may be curved and have a heel section, an arch section and a toe section. The foot portion may be connected to a lower attachment section of the ankle portion, with at least the heel section of the foot portion extending rearwardly from the lower attachment section and below the upper end of the ankle portion.

Probable Assignee: LEHN PHILLIPS VAN

Earliest Publication Date: 19880927



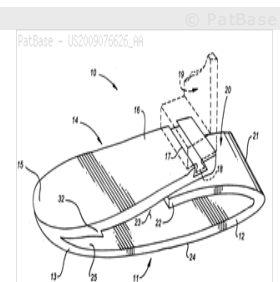
3) Family number: 43036165 (US2009076626A)

PROSTHETIC FOOT

Abstract: Source: US2009076626A A prosthetic foot comprises a ground engaging bottom resilient member, a resilient heel member, and a resilient toe member that collectively circumscribe an open volumetric space. The members resilient compress to absorb compressive force throughout the entire stride of an individual utilizing the foot.

Probable Assignee: ABILITY DYNAMICS LLC

Earliest Publication Date: 20090319



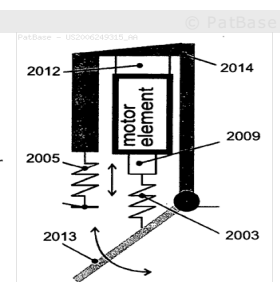
4) Family number: 33603486 (US2006249315A)

ARTIFICIAL HUMAN LIMBS AND JOINTS EMPLOYING ACTUATORS, SPRINGS, AND VARIABLE-DAMPER ELEMENTS

Abstract: Source: US2006249315A Biomimetic Hybrid Actuators employed in biologically-inspired musculoskeletal architectures employ an electric motor for supplying positive energy to and storing negative energy from an artificial joint or limb, as well as elastic elements such as springs, and controllable variable damper components, for passively storing and releasing energy and providing adaptive stiffness to accommodate level ground walking as well as movement on stairs and surfaces having different slopes.

Probable Assignee: MASSACHUSETTS INST OF TECHNOLOGY

Earliest Publication Date: 20061109



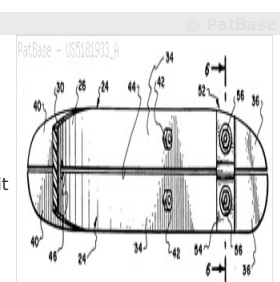
5) Family number: 12289883 (US5181933A)

SPLIT FOOT PROSTHESIS

Abstract: Source: US5181933A A prosthetic foot is characterized by an attachment section and plurality of curvilinear foot portions extending downwardly from the attachment section to contact a supporting surface. The portions are capable of movement independent from one another. Preferably, the plurality of foot portions is fabricated by dividing a forefoot portion and a heel portion demountably attached thereto. Such division may be achieved by the provision of a slot in said forefoot and heel portions. A strap or similar expedient is provided to limit the movement of the foot portions relative to each other.

Probable Assignee: PHILLIPS L VAN

Earliest Publication Date: 19920829



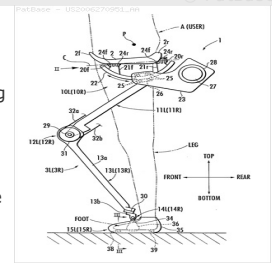
6) Family number: 33890057 (US2006270951A)

CONTROL DEVICE AND CONTROL PROGRAM FOR WALKING ASSIST APPARATUS

Abstract: Source: US2006270951A A control device and a control program for a walking assist apparatus set a desired lifting force to act on a user from a seat and distribute the desired lifting force to each leg link of the walking assist apparatus according to the ratios of treading forces of the legs of the user measured on the basis of outputs of force sensors so as to determine the share for each leg link. Then, an actuator of each leg link is controlled to generate a force for the determined share. Thus, a force required for the user to support himself/herself with his/her leg or legs on a floor can be reduced while using a reduced number of parts to be attached to each leg of the user. Moreover, an assist force for achieving such a reduced required force can be properly shared between the leg links associated with the legs of the user.

Probable Assignee: HONDA MOTOR CO LTD

Earliest Publication Date: 20061129



7) Family number: 31924265 (US2005107889A)

INSTRUMENTED PROSTHETIC FOOT

Abstract: Source: US2005107889A The present invention discloses an instrumented prosthetic foot for use with an actuated leg prosthesis controlled by a controller, the instrumented prosthetic foot comprising a connector to connect the instrumented prosthetic foot to the leg prosthesis, an ankle structure connected to the connector, a ground engaging member connected to the ankle, at least one sensor for detecting changes in weight distribution along the foot, and an interface for transmitting signals from the sensor to the controller.

Probable Assignee: VICTHOM LABORATORY INC

Earliest Publication Date: 20050519



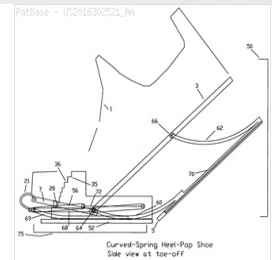
8) Family number: 63832882 (US2016302521A)

SUBSTANTIAL ENERGY RETURN SHOE WITH OPTIMAL LOW-IMPACT SPRINGS AND TUNED GEAR CHANGE

Abstract: Source: US2016302521A The optimized shoe invention comprises five embodiments and two methods to optimize both the performance and comfort of footwear for walking and running and for robotics, prosthetics and orthotics. First, there are three versions of enhanced heel-lift shoes for energy return much higher than that of just "springs in shoes." Second, to minimize foot impact shoe there are ten enhanced optimal springs with 1 percent hysteresis loss. Third, for ankle and knee joints there is a rotating-arms enhanced optimal spring. Fourth, said enhanced optimal springs are incorporated into conventional shoes. Fifth, there is an automatic gear change mechanism to change the sole spring stiffness so that the sole is always close to full compression-so that the performance and comfort is always optimal. The optimal force curve method features a pre-loaded constant force curve tuned to a particular use. The shoe tuning method provides precise sole energies by slicing springs.

Probable Assignee: BRIAN RENNEX

Earliest Publication Date: 20161020



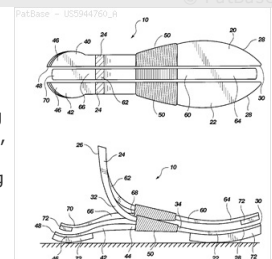
9) Family number: 20696647 (US5944760A)

PROSTHETIC FOOT WITH REINFORCING MEMBER

Abstract: Source: US5944760A A prosthetic foot, having a forefoot member and a heel member, is comprised of two separate members forming opposite halves of the foot generally about the longitudinal axis of the foot for simulating natural rotation of the toes of a real foot. The forefoot member of the foot forms a resilient arc extending from a fixture member to a toe position and has an attachment portion, a curvilinear spring portion, an arch portion, and a toe portion. The heel member extends between the forefoot member and a heel position and has an attachment portion and a heel portion. The heel member is preferably attached to the forefoot member by wrapping the members with a resin impregnated fibre. The foot preferably has a mating member such as a rib-and-groove type connection between the forefoot and heel members for preventing the forefoot and heel portions from sliding and rotating with respect to each other and thus prevents shear stress from being placed on the fibers holding the members together. The foot has a fixture member for attachment to a socket for receiving a stump of an amputee and may include an angle adjustment mechanism for adjusting the angle of the foot members with respect to the ground. The foot may include a secondary heel member in addition to the heel member, or primary heel member for supporting the primary heel member.

Probable Assignee: FREEDOM INNOVATIONS LLC

Earliest Publication Date: 19990831



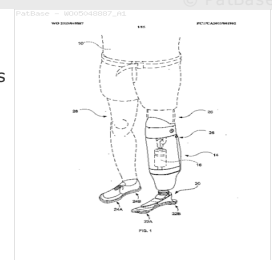
10) Family number: 31958875 (WO05048887A1)

INSTRUMENTED PROSTHETIC FOOT

Abstract: The present application discloses an instrument prosthetic foot (20) for use with an actuated leg prothesis (14) controlled by a controller, the instrumented prosthetic foot (20) comprising a connector to connect the instrumented prosthetic foot (20) to the leg prothesis (14), an ankle structure connected to the connector, a ground engaging member connected to the ankle, at least one sensor (22a, 22b, 24a, 24b, 26) for detecting changes in weight distribution along the foot, and an interface for transmitting signals from the sensor to the controller.

Probable Assignee: VICTHOM HUMAN BIONICS INC

Earliest Publication Date: 20050602



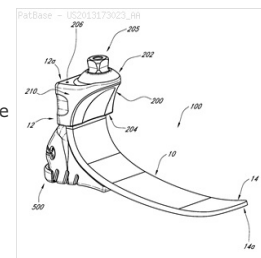
11) Family number: 54260957 (US2013173023A)

PROSTHETIC FOOT WITH RESILIENT HEEL

Abstract: Source: US2013173023A A prosthetic foot can include a resilient heel member that can be removably coupled to the bottom of a plate-like foot member of the prosthetic foot. The heel member can be made of a resilient material, such as foam. The heel member can have a shape that corresponds to a foot cover and allows the prosthetic foot to fit within a foot cover. A lip may be provided to engage with a corresponding portion of the foot cover to secure the heel member within the foot cover. A rib can be located on the bottom of the heel member to create horizontal or vertical displacement of the foot at heel strike. A recess can be created in the heel member to removably receive an insert, which can alter the stiffness of the heel member.

Probable Assignee: OSSUR HF

Earliest Publication Date: 20130704



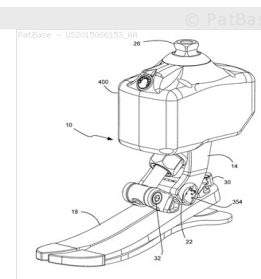
12) Family number: 58627466 (US2015066153A)

MICROPROCESSOR CONTROLLED PROSTHETIC ANKLE SYSTEM FOR FOOTWEAR AND TERRAIN ADAPTATION

Abstract: Source: US2015066153A A prosthetic ankle includes a pair of prosthetic members movably coupled together to allow movement of the pair of prosthetic members with respect to one another. A hydraulic actuator or damper including hydraulic fluid in a hydraulic chamber is coupled to one of the pair of prosthetic members. A hydraulic piston is movably disposed in the hydraulic chamber and coupled to another of the pair of prosthetic members. A hydraulic flow channel is fluidly coupled between opposite sides of the chamber to allow hydraulic fluid to move between the opposite sides of the chamber as the hydraulic piston moves therein. A voice coil valve is coupled to the hydraulic flow channel to vary resistance to flow of hydraulic fluid through the flow channel, and thus movement of the piston in the chamber, and thus influencing a rate of movement of the pair of prosthetic members with respect to one another.

Probable Assignee: FREEDOM INNOVATIONS LLC

Earliest Publication Date: 20150304



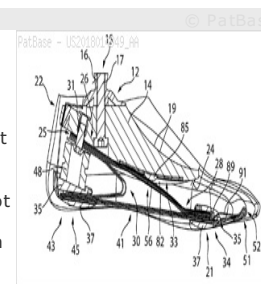
13) Family number: 63117807 (US2018014949A)

PROSTHETIC FOOT

Abstract: Source: US2018014949A The invention relates to a prosthetic foot with a housing (12) on which a connector (15) for a below-knee prosthesis can be arranged, with a forefoot (21) and a heel (43), wherein the housing (12) and the forefoot (21) are connected by at least one forefoot spring element (28), wherein the forefoot (21) and the heel (43) are connected by at least one sole spring element (41), and wherein the heel (43) and the housing (12) are connected by at least one heel spring element (30), wherein the end portions belonging to the at least one forefoot spring element (28) and to the at least one sole spring element (41), and assigned to the forefoot (21), are positioned relative to each other with at least one holding mechanism (34) in such a way that the at least one forefoot spring element (28) and the at least one sole spring element (41) are guided movably relative to each other along their longitudinal axis during a rollover movement.

Probable Assignee: FRAUNHOFER GES

Earliest Publication Date: 20160811



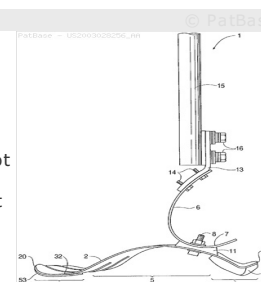
14) Family number: 43234219 (US2003028256A)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE

Abstract: Source: US2003028256A A prosthetic foot incorporate a foot keel and a calf shank connected to the foot keel to form an ankle joint area of the prosthetic foot. The foot keel has forefoot and hindfoot portions and a relatively long midfoot portion extending between and upwardly arched from the forefoot and midfoot portions. The calf shank includes a downward convexly curved lower end which is attached at a portion thereof to the keel midfoot portion by way of an adjustable fastener arrangement. The foot has biplanar motion capability and, in a preferred form, also has high low dynamic response characteristics. The adjustable fastener arrangement permits adjustment of the alignment of the calf shank and the foot keel with respect to one another in the longitudinal direction of the foot keel for tuning the performance of the prosthetic foot.

Probable Assignee: BIOQUEST PROSTHETICS LLC

Earliest Publication Date: 20030206



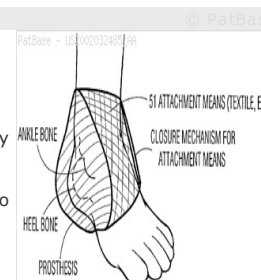
15) Family number: 20090265 (US2002032485A)

APPARATUS AND METHODS FOR PREVENTING AND/OR HEALING PRESSURE ULCERS

Abstract: Source: US2002032485A Protective devices, to protect a body part having a bony portion with a soft tissue layer between the bony portion and an outer skin layer, have an inner surface which conforms to the body part to be protected and are applied to the body part to reduce pressure exhibited at the interface between the bony portion and the soft tissue layer, across the soft tissue and outer skin layers and at the interface between the outer skin layer and a support surface. The protective devices may be made of any material suitable for distributing the weight of the body part over an extended area and volume and may include a mushy material, a hard shell, a hydro absorptive material, and a wound dressing with medication. The body part to be protected includes at least one of the heel, trochanter, knee, sacrum, coccyx, ischium, scapula, elbow, ankle, buttocks and occiput; The protective devices may be secured to the body part directly or via a garment or any other suitable securing means.

Probable Assignee: FLAM ERIC PHD

Earliest Publication Date: 20011004



16) Family number: 61266736 (US2015374514A)

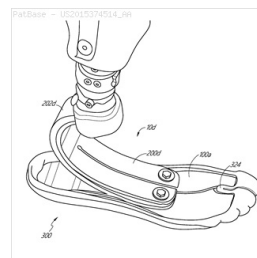
PROSTHETIC FEET AND FOOT COVERS

© PatBase

Abstract: Source: US2015374514A Prosthetic feet and foot covers that provide a more natural appearance and improved performance are provided. A foot element for a prosthetic foot can extend from a heel end to a toe end and include a heel, arch, forefoot, and toe regions. The forefoot region can be wider than the arch and heel regions. The toe region can include a U-shaped cut out to define a big toe. Various features of the foot element can guide rollover of the foot through the big toe during use. A foot cover can be designed to receive a prosthetic foot including such a foot element. The foot cover can have a region of increased flexibility at a transition between the forefoot region and toe region. The foot cover can also have a padded area extending from the heel region across a lateral part of the arch region and forefoot region.

Probable Assignee: OESSUR HF

Earliest Publication Date: 20151231



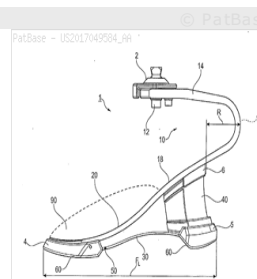
17) Family number: 60013217 (US2017049584A)

PROSTHETIC FOOT

Abstract: Source: US2017049584A A prosthetic foot with a structural component having a proximal attachment member for fastening the prosthetic foot to a below-knee tube, a below-knee shaft or a prosthetic knee joint, with a forefoot portion secured or formed on the structural component, and with a heel-side spring-damper system which is assigned to the structural component and which is compressed at a heel strike and bears on a sole-side guide element. The structural component is designed as a leaf spring which extends in a posterior direction from the proximal attachment means, and forms an arch and is guided in an anterior and distal direction, wherein the arch protrudes posteriorly beyond the guide element.

Probable Assignee: OTTOBOCK SE AND CO KGAA

Earliest Publication Date: 20150806



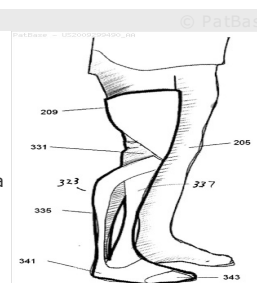
18) Family number: 44051992 (US2009299490A)

PROSTHETIC LIMB

Abstract: Source: US2009299490A A prosthetic limb has an outer surface that is a mirror image of an intact limb or a generic limb design. The intact limb is scanned and the surface data is manipulated to create a virtual mirror image. If generic data is used, the intact leg can be measured and the generic surface can be adjusted so the prosthetic limb appears similar to the intact limb. The end of the amputated limb is also measured to obtain socket data. A knee and foot are incorporated to form a virtual prosthetic limb represented by design data. The design data for the virtual prosthetic limb is forwarded to a rapid prototyping machine that fabricates the entire leg simultaneously. Once completed, the prosthetic limb is shipped to the patient.

Probable Assignee: 3D SYSTEMS INC

Earliest Publication Date: 20091203



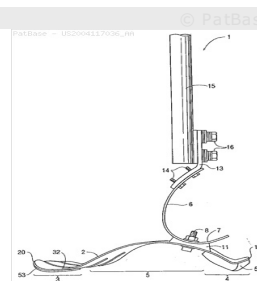
19) Family number: 43234221 (US2004117036A)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE

Abstract: Source: US2004117036A A prosthetic foot (70) incorporates a foot keel (77) and a calf shank (72) connected to the foot keel to form an ankle joint area of the prosthetic foot. The foot keel has forefoot and hindfoot portions and an upwardly arched midfoot portion extending between the forefoot and midfoot portions. The calf shank includes a downward convexly curved lower end which is adjustably attached at a portion thereof to the foot keel by way of a releasable fastener arrangement. The upper end of the calf shank is movable longitudinally of the foot keel in response to force loading and unloading the calf shank during use of the prosthetic foot. A device (71) connected between the ends of the calf shank limits the extent of the motion of the upper end of the calf shank relative to the lower end and foot keel. The upper end of the calf shank can include an alignment coupler device (92) thereon having adjustable slide mechanisms to adjust the medial/lateral and anterior/posterior position of the calf shank relative to a supporting structure on the leg of the person using the prosthetic foot.

Probable Assignee: BIOQUEST PROSTHETICS LLC

Earliest Publication Date: 20040617



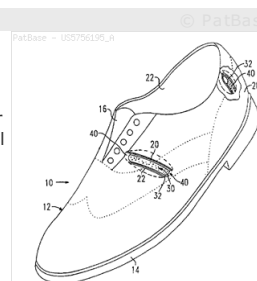
20) Family number: 29435582 (US5756195A)

GEL CUSHION COMPRISING RUBBER POLYMER AND OIL

Abstract: Source: US5756195A A shoe that conforms to foot contours and provides cushioning is comprised of a shoe sole and a shoe upper attached to the shoe sole. The shoe upper is comprised of an outer layer, an inner layer and a conforming layer therebetween, wherein a first portion of the conforming layer is comprised of viscoelastic gel and a second portion of the conforming layer is comprised of environmentally-responsive gel. The environmentally-responsive gel is preferably a temperature-responsive gel that will react to the heat emanating from a foot inserted into the shoe to express a liquid. The viscoelastic gel is preferably a soft, flowable gel that conforms to foot contours.

Probable Assignee: ACUSHNET CO

Earliest Publication Date: 19960716



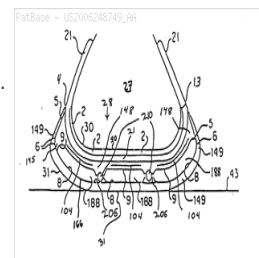
21) Family number: 33047627 (US2006248749A)

DEVICES WITH INTERNAL FLEXIBILITY SIPES, INCLUDING SIPED CHAMBERS FOR FOOTWEAR

Abstract: Source: US2006248749A The present invention attempts to replicate in footwear, orthotics, and other products the naturally effective anatomical structures like a bare foot that provide superior flexibility, cushioning, and stable support compared to existing products. More specifically, the invention relates to a device for such products including a unitary internal sipe component, said internal sipe providing increased flexibility for said device. Even more specifically, the invention relates to footwear, orthotic or other products with an outer chamber and at least one inner chamber inside the outer chamber; the outer chamber and the inner chamber being separated at least in part by an internal sipe; and the internal sipe providing increased flexibility, cushioning, and stability.

Probable Assignee: MOLECULAR SYSTEMS CORP

Earliest Publication Date: 20060601



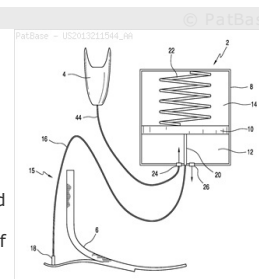
22) Family number: 54554991 (US2013211544A)

VACUUM ASSISTED SUSPENSION SYSTEM

Abstract: Source: US2013211544A A vacuum assisted suspension system is used to increase or maintain negative pressure or vacuum in a sealed socket cavity as a socket and prosthetic limb attachment mechanism. The system includes a vacuum pump having a housing that defines an enclosed space to receive a fluid. At least one wall of the housing and at least one movable wall define a fluid compartment. The system includes a compression transfer element connected to the at least one movable wall and connected to a prosthetic foot. The compression transfer element causes the at least one movable wall of the fluid compartment to move and increase the volume of the fluid compartment in response to a compressive force on the prosthetic foot to draw in fluid from the prosthetic socket. In the absence of a compressive force, the volume of the fluid compartment decreases thereby expelling fluid out of the fluid compartment.

Probable Assignee: OSSUR HF

Earliest Publication Date: 20130815



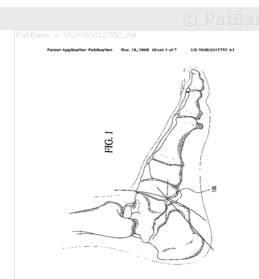
23) Family number: 38529078 (US2008312752A)

MODULAR PROSTHETIC FOOT

Abstract: Source: US2008312752A A modular prosthetic foot characterized by an ankle component; a forefoot component having a circular part with a rounded top surface and at least one flat side surface, said circular part being connected to a rear part of the forefoot component; a forefoot cushion bumper positioned around the circular part; and a heel component.

Probable Assignee: USA REPRESENTED BY SECRETARY OF ARMY ON BEHALF OF USAMRMC AS

Earliest Publication Date: 20071004



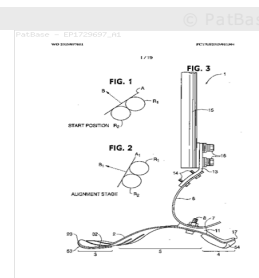
24) Family number: 43234211 (EP1729699A4)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE

Abstract: Source: CA2561314C A system for a lower extremity prosthesis comprising a foot, an ankle and a shank, has a posterior calf device (169) on the prosthesis to store energy during force loading of the prosthesis and return the stored energy during force unloading to increase the kinetic power generated for propulsive force by the prosthesis in gait. The device in several embodiments includes at least one elongated member (171) such as a flexible strap extending between an upper portion of the shank and a lower portion of the prosthesis, and at least one coiled spring (170) which has a free end connected to the elongated member. The coiled spring is expanded by the elongated member in response to anterior movement of the upper end of the shank for storing energy.

Probable Assignee: CLAUDINO BYRON K

Earliest Publication Date: 20060925



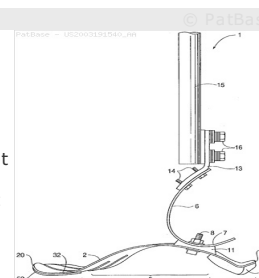
25) Family number: 43234220 (US2003191540A)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE

Abstract: Source: US2003191540A A prosthetic foot incorporate a foot keel and a calf shank connected to the foot keel to form an ankle joint area of the prosthetic foot. The foot keel has forefoot and hindfoot portions and a relatively long midfoot portion extending between and upwardly arched from the forefoot and midfoot portions. The calf shank includes a downward convexly curved lower end which is attached at a portion thereof to the keel midfoot portion by way of an adjustable fastener arrangement. The foot has biplanar motion capability and, in a preferred form, also has high low dynamic response characteristics. The adjustable fastener arrangement permits adjustment of the alignment of the calf shank and the foot keel with respect to one another in the longitudinal direction of the foot keel for tuning the performance of the prosthetic foot.

Probable Assignee: BIOQUEST PROSTHETICS LLC

Earliest Publication Date: 20031009



26) Family number: 57413346 (US2014277587A)

ADDITIVE MANUFACTURING PRODUCED PROSTHETIC FOOT

Abstract: Source: US2014277587A Various systems, apparatuses, and methods for producing a prosthetic foot by an additive manufacturing process are disclosed.

Probable Assignee: WILLOWOOD GLOBAL LLC

Earliest Publication Date: 20140918





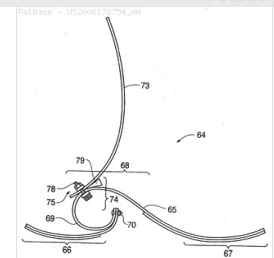
27) Family number: 43234231 (US2006178754A)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE AND IMPROVED VERTICAL LOAD/SHOCK ABSORPTION

Abstract: Source: US2006178754A A prosthetic foot (64) incorporates a foot keel (65) and a calf shank (73) connected to the foot keel to form an ankle joint area (74) of the prosthetic foot. The foot keel has forefoot and hindfoot portions (67, 66) and a relatively long midfoot portion (68) extending between and upwardly arched from the forefoot and midfoot portions. The calf shank includes a downward convexly curved lower end which is attached at a portion thereof to the keel midfoot portion by way of an adjustable fastener arrangement (75). The adjustable fastener arrangement permits adjustment of the alignment of the calf shank and the foot keel with respect to one another in the longitudinal direction of the foot keel for tuning the performance of the prosthetic foot. The upwardly arched midportion of the foot keel, in addition to absorbing energy from vertical loading by expansion, can be formed with a coiled spring (69) which is compressed to absorb and expanded to return vertical load during use of the prosthetic in wide range of activities from walking to running and jumping.

Probable Assignee: BIOQUEST PROSTHETICS LLC

Earliest Publication Date: 20060810



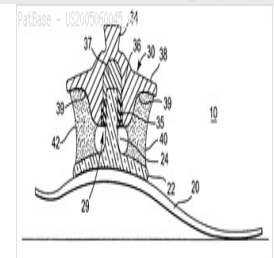
28) Family number: 31762293 (US2005060045A)

MULTI-AXIAL PROSTHETIC FOOT

Abstract: Source: US2005060045A A simple, wide ranging multi-axial foot with energy return and/or storage. An upper member and a spaced apart lower member are joined through a post connected to the lower member and a ball joint connected to the upper member. One buffer is located anterior to the ball joint-post, one buffer is located posterior to the ball joint-post. A heel member and heel buffer provide additional energy storage and return.

Probable Assignee: OTTO BOCK HEALTHCARE LP

Earliest Publication Date: 20050317



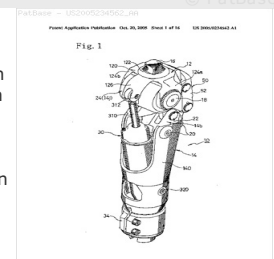
29) Family number: 30662383 (US2005234562A)

PROSTHETIC LEG WITH KNEE BRAKING FUNCTION

Abstract: Source: US2005234562A There is provided a prosthetic limb having a flexible knee brake function, which is designed such that it can be mechanically detected which part of the foot the load of the wearer is imposed on. In a thigh prosthetic limb (10), a joint upper member (12) including a knee plate (120) and a joint lower member (14) including a base bracket (22) integral with the frame (140) are operated to bend the knee. In the housing member (24), there are provided not only a knee axis but also a hydraulic brake circuit. There is a link mechanism (50) which allows a small relative motion between the housing member (24) and the base bracket (22) on the main body part side. The link mechanism (50) has an instantaneous center between the toe and the heel part of the prosthetic limb. This instantaneous center serves as a sensing point and detects which part of the foot the load of the wearer is imposed on by distinguishing a first case in which the wearer's load is imposed on the heel and a second case in which the wearer's load is imposed on the toe. Based on the detection result made by the link mechanism (50), the hydraulic brake circuit is controlled so that a flexible knee braking operation can be made.

Probable Assignee: NABCO LTD

Earliest Publication Date: 20040603



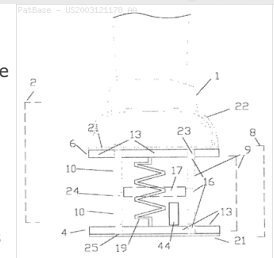
30) Family number: 31423805 (US2003121178A)

SPRING SPACE SHOE

Abstract: Source: US2003121178A This invention is a spring shoe called herein a space shoe. Its sole is a structure constrained to compress without tilting; this structure is called herein the p-space. This optimally simple, anti-tilt, compressible structure comprises overlapping diamond and parallelogram linkages which constrain an upper plate from tilting as it moves vertically up and down with respect to a lower plate. The p-diamond has many applications where non-tilt spring systems are required, and it is an inexpensive alternative to telescopically guided spring systems. Applications include, but are not limited to, a space shoe with a push-off means for natural foot action. Here, a minimal number of springs and stops can be changeably incorporated in the sole to optimize walking and running performance. A heel hugger mechanism ensures that the shoe hugs the heel of the wearer during swing phase. A flex-rigger prevents sideways rollover and sprained ankles. The first shoe embodiment, a space shoe, has springs at shoe level, and the second, a bow shoe, has a bow spring above shoe level-to minimize device weight at foot level. The space shoes can be vary in thickness (1-6 inches, or more); the shoe is energy-efficient in that it returns maximum impact energy (both heel impact and toe impact) to the runner during thrust at toe-off; weight and cost are inherently low; and, the spring force-curve can be varied from linear to constant (for maximum performance and impact injury reduction). Other p-diamond applications include prosthetics, robotics, orthotics such as running/walking braces, and backpack-supporting, machine legs.

Probable Assignee: RENNEX BRIAN G

Earliest Publication Date: 20030703



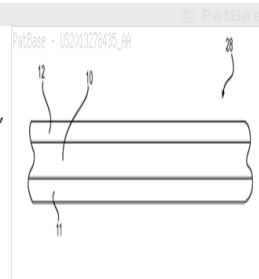
31) Family number: 55003283 (US2013278435A)

SMARTPHONE-CONTROLLED ACTIVE CONFIGURATION OF FOOTWEAR INCLUDING WITH CONCAVELY ROUNDED SOLES

Abstract: Source: US2013278435A A smartphone or other mobile computer device, general purpose or specialized, wherein the smartphone device is configured to actively control the configuration of one or more bladders, compartments, chambers or internal sipes and one or more sensors located in either one or both of a sole or a removable inner sole insert of the footwear of the user and/or located in an apparatus worn or carried by the user, glued unto the user, or implanted in the user. The one or more bladders, compartments, chambers, or sipes, and one or more sensors are configured for computer control. A sole and/or a removable inner sole insert for footwear, including one or more bladders, compartments, chambers, internal sipes and sensors in the sole and/or in a removable insert; or on an insole; all being configured for control by a smartphone or other mobile computer device, general purpose or specialized.

Probable Assignee: ELLS FRAMPTON E

Earliest Publication Date: 20131024



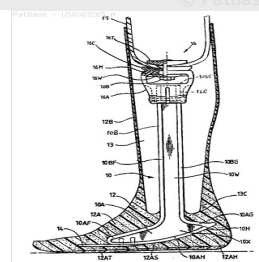
32) Family number: 20641168 (US6083265A)

FOOT AND SHIN COMPONENT FOR A LOWER LIMB PROSTHESIS

Abstract: Source: US6083265A A unitary foot and shin component for a lower limb prosthesis has a one piece thermoplastic endoskeletal foot keel and shin member and a continuous flexible cosmesis. The cosmesis includes a resilient foot body which is molded directly onto the keel so as to embed the keel, and an integral flexible and hollow shell which surrounds the shin member but is spaced from it. By forming the foot body and the hollow shell as a single polyurethane molding, the foot and shin can be supplied as a single component, ready for connection to a stump socket and alignment coupling.

Probable Assignee: BLATCHFORD PRODUCTS LTD

Earliest Publication Date: 19990526



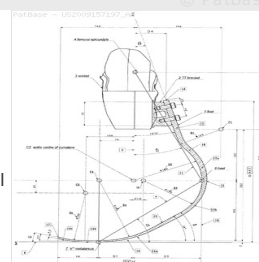
33) Family number: 42931872 (US2009157197A)

BRACKET-FIXABLE RUNNING FOOT FOR LOWER LIMB PROSTHESIS

Abstract: Source: US2009157197A The prosthetic foot (1) is a lamina of composite material with a characteristic J-shape, fixable by a TT bracket (2) directly to a socket (3) containing the stump, i.e. the residual part of the amputated lower limb, in the case of users with transtibial amputations, or to a TF bracket (2a) itself fixable to a mechanical knee (G) fixable to a socket (3a), in the case of users with transfemoral amputations. Said socket (3 or 3a) has a main axis (5) defined by the loading straight line by which the user, after applying the prosthesis, discharges body weight in the static position, and passing through a point (4) identifying the femoral epicondyle, real in the case of transtibial users and virtual in the case of trans femoral users, but coinciding with the centre of rotation of the knee during mid-stance. During assembly and static alignment of the foot (1), with the configuration in which the main axis (5) is in the vertical position, a segment (9) joining a first point (7) of tangency between said foot (1) and a line pertaining to a plane (6) perpendicular to the main axis (5) and defining the ground line, to a second point (8) of tangency between the foot (1) and a straight line (10) parallel to the main axis, is inclined by an angle alpha of between 30 degrees and 50 degrees to said ground line (6), said second point (8) of tangency lying at the end of a segment (11) which is inclined by an angle beta of between 20 degrees and 40 degrees to said main axis (5) and intersects said axis at the point (4).

Probable Assignee: ROADRUNNERFOOT ENGINEERING SRL

Earliest Publication Date: 20090510



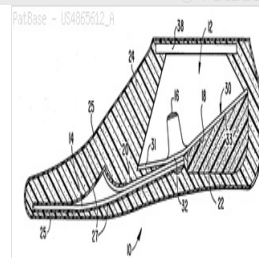
34) Family number: 9017049 (US4865612A)

PROSTHETIC FOOT

Abstract: Source: US4865612A An artificial foot includes a hollow, rigid, compression-molded composite keel made from aramid fiber-reinforced plastic for connection to a prothesis and to an improved composite carbon-fiber material acting as a spring for improving the energy absorbing and releasing characteristics of the foot to aid movement of the amputee. The spring includes a pair of thin, forwardly-extending composite spring members capable of lateral movement with respect to each other and connected to the keel. An auxiliary deflection spring or plate is interposed between the primary deflection plate and the keel and includes a forwardly-extending upwardly-oriented portion to aid in energy absorption and release during flexing of the foot. The plates are surrounded by a suitable abrasion resistant material, such as a Kevlar sock, surrounded by a low density flexible foam urethane. A medium density flexible foam urethane wedge is interposed beneath the heel portion of the keel. The composite construction is surrounded by an outer shell formed in the shape cosmetically to resemble a foot. The keel structure and method of making the composite to provide longitudinal and transverse strength are also disclosed.

Probable Assignee: OHIO WILLOW WOOD INC

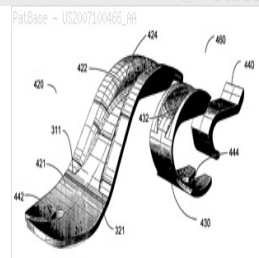
Earliest Publication Date: 19880211



35) Family number: 34354248 (US2007100466A)

PROSTHETIC FOOT DEVICES

Abstract: Source: US2007100466A An improved prosthetic foot achieves minimal weight, robust structure, and anatomically correct behaviors by means of structural arrangement and maximized material application. The improved prosthetic foot includes a forefoot leaf spring longitudinally strengthened by a raised or inverted channel and a heel assembly having a non-linear loading response as the heel member is depressed during a gait cycle. A forefoot according to the invention has a mean flexure line substantially parallel to, and forwardly displaced from, the T_C axis of rotation of an equivalent intact foot. The forefoot leaf spring channel provides a hinging action that allows for the expression and isolation of rotational forces at the front of the forefoot (inversion and eversion) separate from the rear of the foot. The hinging action also helps advantageously distribute the pressure of the body weight on the foot in a manner akin to a natural foot. The channel also forms a path for the progression of the center of mass of the body as it progresses through the gait process.



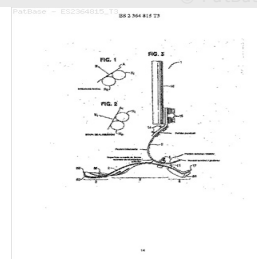
Probable Assignee: ALLERT DANIEL ANDREW

Earliest Publication Date: 20070329

36) Family number: 44091428 (ES2364815T)

PIE PROTESICO CON CAPACIDAD REGULABLE. ADJUSTABLE SEATS PROSTHETIC FOOT. (MACHINE TRANSLATION)

Abstract: Source: ES2364815T Un pie protesico (1, 53) que comprende: una quilla de pie resiliente, (2, 33, 38, 40, 42, 43, 54), que se extiende en sentido longitudinal, un fuste de pantorrilla resiliente (6, 44 - 51, 55), vertical, alargado con una porcion inferior (7) que forma un area de articulacion del tobillo del pie protesico, una porcion intermedia, y una porcion proximal para su conexion con una estructura de soporte sobre la pierna residual de una persona, terminando dicha porcion inferior posteriormente en un extremo del fuste y extendiendose anteriormente hacia arriba hasta dicha porcion intermedia por medio de una superficie curvada de forma convexa de orientacion anterior, siendo dicho fuste comprimible y expansible en la direccion longitudinal (A - A) de la quilla de pie durante la marcha para simular la flexion plantar y la flexion dorsal de la articulacion del tobillo humano; en el que el fuste se extiende hacia arriba en una forma sustancialmente curvilinea por encima del area de la articulacion del tobillo para formar una parte protesica inferior de una pierna por encima del area de la articulacion del tobillo; una disposicion de sujecion (8, 11, 56, 57, 58) que incluye al menos un medio de sujecion liberable (8, 57, 58), que conecta y situa firmemente la porcion inferior del fuste sobre la quilla de pie para crear una capacidad de respuesta dinamica y un resultado de desplazamiento del pie durante la marcha; en el que el fuste soporta y transfiere unicamente la fuerza de soporte del peso del cuerpo sobre el pie protesico durante dicha marcha para oponerse a la fuerza de reaccion del suelo creada en el pie protesico durante dicha marcha.



Machine translation: A prosthetic foot (1, 53) comprising: a resilient foot keel (2, 33, 38, 40, 42, 43, 54), extending longitudinally, a resilient calf shank (6, 44 to 51, 55), vertically elongate with a lower portion (7) which forms an ankle joint area of the prosthetic foot, an intermediate portion and a proximal portion for connection to a support structure on the leg residual of a person, subsequently terminating said lower portion at one end of the shaft and extending upwardly to above the said intermediate portion by a convexly curved surface of previous orientation, said shaft being compressible and expandable in the longitudinal direction (A - A) of the keel of the foot during operation to simulate plantar flexion and dorsal flexion of the ankle joint human in which the shaft extends upwardly in a substantially curvilinear area above the ankle joint for form part of a prosthetic lower leg area above the ankle joint, a clamping arrangement (8, 11, 56, 57, 58) that includes at least one releasable fastening means (8, 57, 58), and connecting the lower portion located firmly on the keel stem standing to create a dynamic response capability and a result of displacement of the foot during walking, in which the shaft supports and transfers only the force of body weight support on the prosthetic foot during the march to oppose the soil reaction force created in the prosthetic foot during the march.

Probable Assignee: TOWNSEND BARRY W

Earliest Publication Date: 20091118

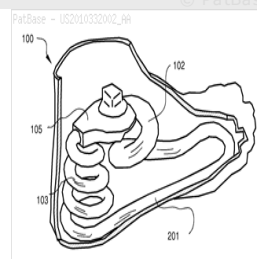
37) Family number: 47933104 (US2010332002A)

CARBON FIBER PROSTHETIC FOOT WITH HOLLOW CROSS SECTIONS

Abstract: Source: US2010332002A A hollow tubulous composite structure and method for prosthetic limbs is described.

Probable Assignee: NELSON RONALD HARRY

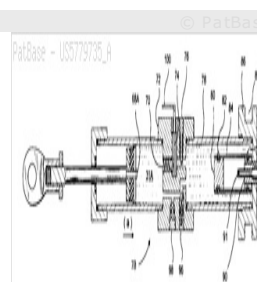
Earliest Publication Date: 20101230



38) Family number: 11016190 (US5779735A)

KNEE UNIT FOR ABOVE-KNEE PROSTHETIC LEG

Abstract: Source: US5779735A A knee unit for an above-knee prosthetic leg includes a piston arrangement, a valve arrangement and a bladder arrangement for achieving swing and stance control of the prosthetic leg. For swing control the piston arrangement displaces a fluid through the valve arrangement to compress the bladder arrangement for storing the energy required to drive an extension cycle of the prosthetic leg and to provide bias and flexion resistance for the knee unit. For stance control the valve arrangement is such that when weight is applied to the heel of a prosthetic foot at various stages of the gait cycle of the prosthetic leg, the knee unit is permitted to flex or is prevented from flexing via compression of the bladder to provide stability during the various phases of the gait cycle.



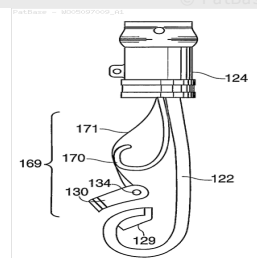
Probable Assignee: MOLINO JOSEPH L VALLEY COTTAGE N Y US

Earliest Publication Date: 19980714

39) Family number: 43234241 (WO05097009A1)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE

Abstract: A system for a lower extremity prosthesis comprising a foot, an ankle and a shank, has a posterior calf device (169) on the prosthesis to store energy during force loading of the prosthesis and return the stored energy during force unloading to increase the kinetic power generated for propulsive force by the prosthesis in gait. The device in several embodiments includes at least one elongated member (171) such as a flexible strap extending between an upper portion of the shank and a lower portion of the prosthesis, and at least one coiled spring (170) which has a free end connected to the elongated member. The coiled spring is expanded by the elongated member in response to anterior movement of the upper end of the shank for storing energy.



Probable Assignee: CLAUDINO BYRON K

Earliest Publication Date: 20051020

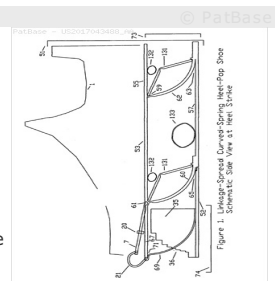
40) Family number: 59954107 (US2017043488A)

CUTTING BLADE

Abstract: Source: US2017043488A A futuristic shoe with true energy return based on enhanced heel-lift, optimized shoe springs (40 percent reduction in maximum foot impact), practical precise automatic electronic gear changers, novel powerful shoe impact chargers, improved pulley electronic actuators, novel low-impact much stronger springs (featuring the novel use materials such as Kevlar, Spectra Shield, and fiberglass), novel remarkably stronger, more flexible, and tougher structures, and multiple designs for enhanced heel-lift and to prevent excessive toe sink. These designs require linkages and two improved hinges-one with enhanced natural hinges and a second with tied cogged hinges. There is a rotating-arms enhanced optimal spring, which when combined with the tied cogged hinges, results in optimal foldable arrays for deployment in outer space-and which gives a smart energy return knee brace. These novel capabilities promise a wide range of additional applications such as robotics, prosthetics, orthotics, springs, aerospace, automobiles, body armor, and earthquake retrofitting.

Probable Assignee: MCPHERSON S HOUSEWARES IP PTY LTD

Earliest Publication Date: 20150730



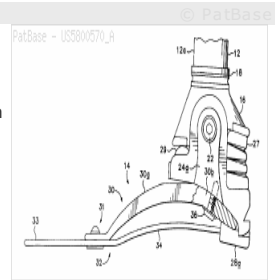
41) Family number: 10293197 (US5800570A)

LOWER EXTREMITY PROSTHETIC DEVICE

Abstract: Source: US5800570A The present invention is a lower extremity prosthetic device which includes a modular foot having a heel member and an elongate, dorsal midfoot member configured for detachable combination via a coupling mechanism. The heel member is formed substantially from a first structural material of a first modulus of elasticity. The midfoot member is formed substantially from a second structural material having a second modulus of elasticity less than the first modulus of elasticity. The midfoot member extends arcuately forwardly from the heel member, and is configured with differentially flexible lateral and medial elements which provide the device with flexion characteristics similar to those of a natural foot. An elongate plantar member extends between the heel member and a forward end of the midfoot member, the plantar member being formed substantially from a third material having a third modulus of elasticity which is lower than the second modulus of elasticity. The plantar member includes a toe section and a sub-arch section. The sub-arch section extends arcuately between the heel member and the forward end of the midfoot member. The toe section extends forwardly from the sub-arch section.

Probable Assignee: COLLIER MILO S

Earliest Publication Date: 19970918



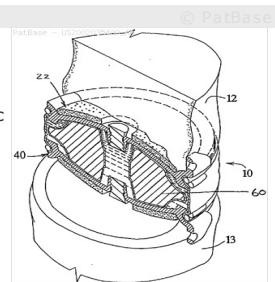
42) Family number: 28292471 (US2002035400A)

IMPLANTABLE JOINT PROSTHESIS

Abstract: Source: US2002035400A The invention relates to a surgical implant that provides an artificial diarthroidal-like joint, suitable for use in replacing any joint, but particularly suitable for use as an intervertebral disc endoprosthesis. The invention contains two rigid opposing shells, each having an outer surface adapted to engage the surfaces of the bones of a joint in such a way that the shells are immobilized by friction between their outer surfaces and the surfaces of the bone. These outer surfaces are sufficiently rough that large frictional forces strongly resist any slippage between the outer surface and the bone surfaces in the joint. They may be convex, and when inserted into a milled concavity, are immediately mechanically stable. Desirably, the outer surfaces of the shells are adapted to allow for bony ingrowth, which further stabilizes the shells in place. The inner surfaces of the shells are relatively smooth, and adapted to slide easily across a portion of the outer surface of a central body disposed between the shells. The central body has a shape that cooperates with the shape of the inner surface of the shell so as to provide a range of motion similar to that provided by a healthy joint. A flexible sheath extends between edges of the opposing shells. The inner surface of this sheath, together with the inner surfaces of the rigid shells, defines a cavity encasing the central body. At least a portion of this cavity is filled with a fluid lubricant, further decreasing the frictional force between inner surfaces of the shell and the surface of the central body.

Probable Assignee: SDGI HOLDINGS INC

Earliest Publication Date: 20020214



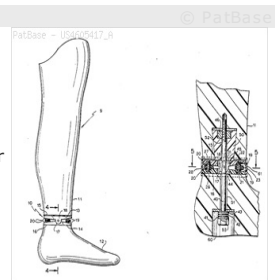
43) Family number: 5084312 (US4605417A)

PROSTHETIC JOINT

Abstract: Source: US4605417A A prosthetic ankle which can be easily and inexpensively manufactured and installed in conventional rigid prosthetic legs comprises opposing oblong plates having peripheries which are shaped to match the ankle portion of the leg in which the prosthetic ankle will be installed. Hinge structure bisects the inner surfaces of the plates and rotatably connects the plates, one of which is secured to a lower leg surface and the other to an upper foot surface. The plates may be sloped fore and aft to allow vertical rotation of the foot relative to the leg about the hinge axis. Biasing structure acts to return the foot to a position perpendicular to the leg and provide increased biasing with increased bending. The ankle allows small lateral rotations of the foot. The invention also provides for an auxiliary attachment, such that if an element of the ankle should fail the foot will remain secured to the leg.

Probable Assignee: FLEISCHAUER K E

Earliest Publication Date: 19860812



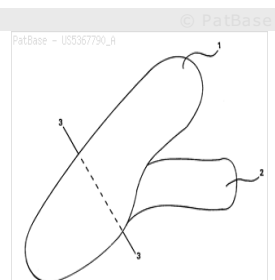
44) Family number: 12086261 (US5367790A)

SHOE AND FOOT PROSTHESIS WITH A COUPLED SPRING SYSTEM

Abstract: Source: US5367790A The invention relates to a sole system for use especially with an athletic shoe or prosthesis. The sole includes a coupled spring configuration that forms a collapsible, longitudinal arch to permit maximum storage and release of energy during the running cycle.

Probable Assignee: GAMOW RUSTEM I

Earliest Publication Date: 19941129



45) Family number: 29448085 (US2005217142A)

SHOE SOLE ORTHOTIC STRUCTURES AND COMPUTER CONTROLLED COMPARTMENTS

Abstract: Source: US2005217142A This invention relates generally to footwear such as a shoe, including an athletic shoe, with a shoe sole, including at least one orthotic section formed at least in part by midsole material. The insertable midsole orthotic is removably inserted within the shoe upper, the sides of which hold it in position. The shoe sole includes a concavely rounded side or underneath portion, which may be formed in part by the insertable midsole orthotic. The insertable midsole orthotic may extend the length of the shoe sole or may form only a part of the shoe sole and can incorporate cushioning or structural compartments or components. The insertable midsole orthotic provides the capability to permit replacement of midsole material which has degraded or has worn out in order to maintain optimal characteristics of the shoe sole. Also, the insertable midsole orthotic allows customization for the individual wearer to provide tailored cushioning or support characteristics for the purpose of orthopedic, podiatric, corrective, prescriptive, therapeutic and/or prosthetic purposes. The shoe sole can also include at least one compartment containing a fluid, a flow regulator, a pressure sensor to monitor the compartment pressure, and a control system such as a computer processor, capable of automatically adjusting the pressure in the compartment(s) in response to the impact of the shoe sole with the ground surface.

Probable Assignee: ANATOMIC RES INC

Earliest Publication Date: 20000921



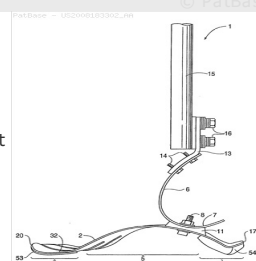
46) Family number: 43234237 (US2008183302A)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE

Abstract: Source: US2008183302A A prosthetic foot incorporate a foot keel and a calf shank connected to the foot keel to form an ankle joint area of the prosthetic foot. The foot keel has forefoot and hindfoot portions and a relatively long midfoot portion extending between and upwardly arched from the forefoot and midfoot portions. The calf shank includes a downward convexly curved lower end which is attached at a portion thereof to the keel midfoot portion by way of an adjustable fastener arrangement. The foot has biplanar motion capability and, in a preferred form, also has high low dynamic response characteristics. The adjustable fastener arrangement permits adjustment of the alignment of the calf shank and the foot keel with respect to one another in the longitudinal direction of the foot keel for tuning the performance of the prosthetic foot.

Probable Assignee: BIOQUEST PROSTHETICS LLC

Earliest Publication Date: 20080731



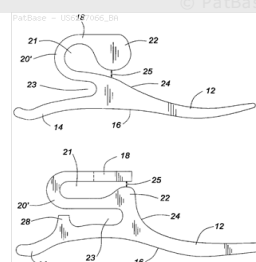
47) Family number: 14977873 (US6197066B)

PROSTHETIC FOOT PROVIDING PLANTAR FLEXION AND CONTROLLED DORSIFLEXION

Abstract: Source: US6197066B The present invention relates to a prosthetic foot including an integral spring portion providing motion in the foot, particularly a unitary foot structure providing a selectable degree of plantar flexion and a stiff structure for toe off. The present invention has found that an integrally formed c-shaped spring portion having an anterior gap, joining a connection platform and the heel and forefoot portions can provide a controlled range of natural mobility in a prosthetic foot as an economical design. The c-shaped spring can deflect, angling the connection platform rearwardly to a partially opened position against the bias of the spring, and angling the connection platform forwardly until the stop abuts the top surface of the forefoot in a closed position. The stop is positioned a selected distance above the top surface to obtain the desired angle of dorsiflexion. The plantar flexion against the bias of the spring is relatively stiff and provides a variable limit to the range of plantar flexion depending on the force exerted. In contrast, the deflection closing the c-shaped spring is relatively compliant but provides an angular range specifically defined by the position of the stop. In addition, the anterior gap also deflects to permit more limited inversion and eversion before the deflection is stabilized by contact between the stop and the top surface. Additional flexibility is obtained using an integral spring element having a substantially S-shape. The posterior facing c-shaped aperture in the S-shaped spring element provides additional deflection for plantar flexion.

Probable Assignee: GABOURIE ROBERT MAURICE

Earliest Publication Date: 19991124



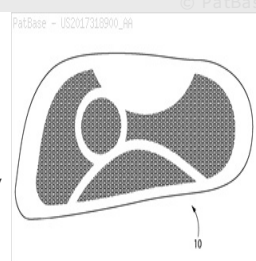
48) Family number: 58342742 (US2017318900A)

AN ORTHOTIC AND A METHOD OF MAKING AN ORTHOTIC

Abstract: Source: US2017318900A A method of making an orthotic is disclosed. The method includes the steps of taking measurements relating to a foot and then creating a digital representation of an orthotic on a display device based on said measurements. This digital representation of the orthotic having a heel portion for supporting a heel of a person and a distal portion located in front of the heel portion which can be divided into first and second distal portions. The thickness of the digital representation of the first and second distal portions is then varied such that one of the distal portions is thicker than the other. Finally, an additive manufacturing technique, using a substantially uniform material or materials, is used to create a physical version of the digital representation of the orthotic.

Probable Assignee: PEACOCKS ORTHOTICS LTD

Earliest Publication Date: 20160519

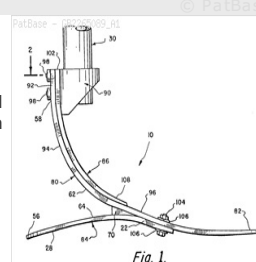


49) Family number: 12508259 (GB2265089A)

A PROSTHETIC FOOT

Abstract: Source: GB2265089A A prosthetic foot comprises a forefoot portion 80 having a heel portion 84, preferably demountably and interchangeably connected thereto. The forefoot portion and heel portion are fabricated from polymer impregnated and encapsulated laminates or other reinforcing fiber, including such materials as carbon fibers and/or fiberglass or synthetic fibers such as Kevlar (RTM). The demountable connection of the heel portion permits interchangeability of heel and forefoot portions to match the weight, stride and activity schedule of the wearer utilizing the prosthetic foot. An auxiliary ankle spring member 86 and a wedge spring 70 between the forefoot portion and the heel portion provides additional adjustability. A curved ankle section 94 of the forefoot portion extends into a substantially vertically extending attachment section 92, which carries a coupling 90 for a pylon 30.

Probable Assignee: PHILLIPS L VAN



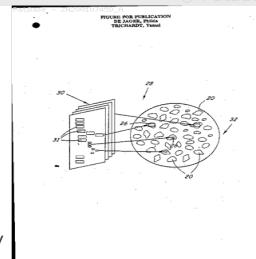
Earliest Publication Date: 19930625
50) Family number: 24128125 (ZA200107459A)

METHOD OF ARRANGING INFORMATION.

Abstract: Source: ZA200107459A ABSTRACT An information warehouse 28 includes a thesaurus 30 which is defined by a systematic structure of specific subject matter items 31 related to a particular knowledge field. The thesaurus 30 is in the form of a lexicon of specific identified relevant topics or subject matter items which define the knowledge field. The thesaurus 30 integrates subject matter items 31 contained within different websites 20 within a single source. The information indexed within each of the subject matter items 31 inputs hypertext links to webpages 26 which contain information relating to the item 31. A conceptual scheme of the thesaurus 30 and/or the warehouse 28 is selected for a type of user, for example, a medical doctor specialising in sports medicine. The invention also extends to a method of populating the thesaurus 30 by searching on the web through a plurality of sources of information and matching, arranging and integrating the information according to the structure defined by the conceptual scheme.

Probable Assignee: DE JAGER PHILDA

Earliest Publication Date: 20020312



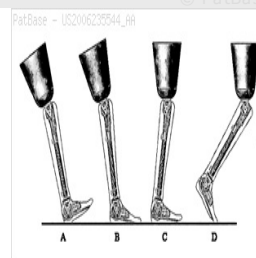
51) Family number: 33513121 (US2006235544A)

DEVICE AND SYSTEM FOR PROSTHETIC KNEES AND ANKLES

Abstract: Source: US2006235544A A device and system is provided for a prosthetic device having an articulating joint for a leg amputee. The device includes a joint housing forming a chamber, and the chamber has a first opening. A rotary hub can be disposed within the joint housing and configured to act as the articulating joint. One or more vanes can extend outwardly from the rotary hub, and the vane is configured to actuate fluid flow through the first opening.

Probable Assignee: MOTION CONTROL

Earliest Publication Date: 20061019



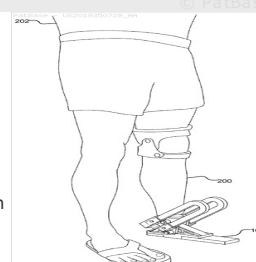
52) Family number: 71884043 (US2019350729A)

SPRING DESIGN FOR PROSTHETIC APPLICATIONS

Abstract: Source: US2019350729A A prosthesis, including a prosthetic foot, a prosthetic talocrural joint, a prosthetic ankle pivotally coupled to the prosthetic foot and a four-area bending beam. The four-area bending beam includes a U-shaped or other spring. One end of the spring is mechanically coupled via two of the four areas to the prosthetic foot. The other end of the spring is mechanically coupled via the other two areas to the prosthetic ankle. The spring resiliently resists pivoting of the prosthetic ankle about the prosthetic talocrural joint. The four-area bending beam exhibits an at least approximately constant moment along its length to maximize strain energy density, storing about four times as much elastic energy as a comparable cantilevered beam, thereby providing high stiffness and high range of motion to the ankle. The spring is modular, being easily replaced with another spring exhibiting a different stiffness, ex., to tailor the prosthesis to a user.

Probable Assignee: MASSACHUSETTS INST TECHNOLOGY

Earliest Publication Date: 20181115



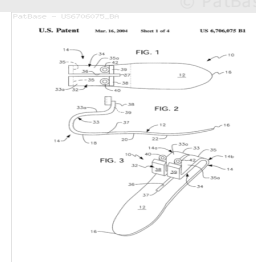
53) Family number: 30379266 (US6706075B)

DYNAMIC PROSTHETIC FOOT WITH MULTIPLE LOAD POINTS HAVING SOLE ONLY

Abstract: Source: US6706075B A dynamic prosthetic foot having multiple load points includes a sole only. A longitudinally-extending slot divides the heel end of the sole into a lateral heel member and a medial heel member. A heel end of the lateral heel member is formed by a return bend that terminates in an upwardly turned straight pylon support that is normal to the sole. The medial pylon support has the same construction but has less thickness and strength and therefore more flexibility than the lateral pylon support. In a second embodiment, an elongate pylon supplants each pylon support. The split heel structure provides a prosthetic foot having enhanced heel elasticity.

Probable Assignee: ALPS INTELLECTUAL PROPERTY MANAGEMENT LLC

Earliest Publication Date: 20040316



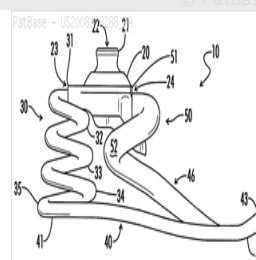
54) Family number: 42160226 (US2008228288A)

COMPOSITE PROSTHETIC FOOT

Abstract: Source: US2008228288A A prosthetic foot is provided with an ankle plate for attachment to a lower leg prosthesis and supporting a composite frame having a hollow composite biasing structure, preferably in the form of a generally helical spring curved about a vertical axis.

Probable Assignee: CLOSEDMOLD COMPOSITES LLC

Earliest Publication Date: 20080918



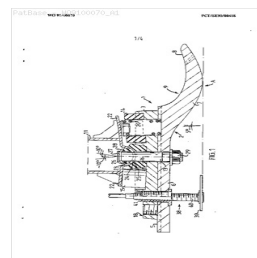
55) Family number: 3335054 (WO9100070A1)

PROSTHETIC LIMB

Abstract: A prosthetic-foot body structure, preferably of the kind intended to support an adapter for connection of the prosthetic foot to a prosthetic leg. In order to facilitate and simplify the adjustment of a prosthetic foot to the wearer, irrespective of whether a right-foot or a left-foot prosthesis is intended, the inventive body structure (1) is constructed from, for instance, two parts (2, 3) which are made of a rigid material and have the form of a foot plate (2) and an adapter plate (3) on which the adapter (11) is mounted. The adapter plate (3) and the foot plate (2) can be mutually connected in a number of positions, preferably at least two positions, in which they are displaced relatively to one another.

Probable Assignee: AFFA ORTOPEDI AB

Earliest Publication Date: 19901231



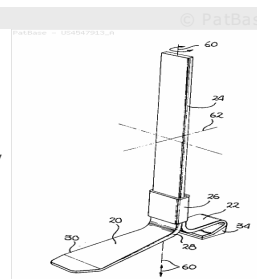
56) Family number: 4884078 (US4547913A)

COMPOSITE PROSTHETIC FOOT AND LEG

Abstract: Source: US4547913A A composite prosthetic foot and leg which allows a high degree of mobility on the part of an amputee is disclosed. The prosthetic foot and leg utilizes a resin impregnated high strength filament structure for the leg portion, the foot portion and heel portion, with all three regions being provided with substantial elastic flexibility, preferably of relatively low energy absorption characteristics so as to give the wearer high mobility with a relatively natural feel. All three portions of the prosthetic foot and leg are rigidly joined, with a flexibility of the leg portion providing flexibility of the leg in response to both torques about the ankle as well as about a vertical axis while simultaneously providing sidewise rigidity of the structure. Various embodiments are disclosed.

Probable Assignee: FLEX FOOT INC

Earliest Publication Date: 19851022



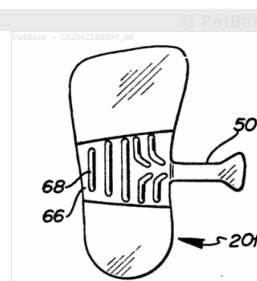
57) Family number: 30123929 (US2002188997A)

SHIN-GUARD, HELMET, AND ARTICLES OF PROTECTIVE EQUIPMENT INCLUDING LIGHT CURE MATERIAL

Abstract: Source: US2002188997A The present invention teaches novel articles of apparel and protective equipment including light-cure materials having a permanent memory capability. Accordingly, the present invention can be used to make shin-guards, knee pads, thigh pads, hip pads, rib guards, shoulder pads, elbow pads, biceps pads, forearm pads, gloves, neck guards, face guards, chin straps, wrist guards, helmets and prosthetic devices.

Probable Assignee: LYDEN ROBERT M

Earliest Publication Date: 19920407



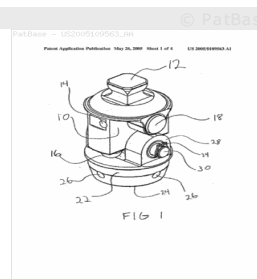
58) Family number: 31944569 (US2005109563A)

ADJUSTING MECHANISM FOR A PROSTHETIC

Abstract: Source: US2005109563A An adjusting mechanism alters the heel height on a prosthetic foot and works independently of any articulating ankle joint or foot style, without changing the original dynamic alignment of a prosthetic leg. In a two chamber hydraulic closed system-a fluid material is allowed to flow through the two chambers by means of pistons that push the fluid material equally from one chamber to another until the desired heel height is obtained. Once the correct position is obtained, the ports are closed by means of a push button stop, which closes the ports and stops all transfer of fluid between the ports holding the heel in position during use.

Probable Assignee: THERMAL TECHNIQUES INC

Earliest Publication Date: 20050526



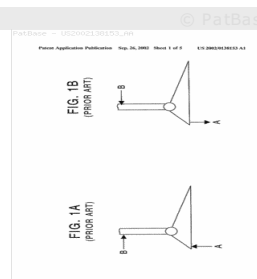
59) Family number: 23695389 (US2002138153A)

SELF-ADJUSTING PROSTHETIC ANKLE APPARATUS

Abstract: Source: US2002138153A An auto-adjusting prosthetic ankle apparatus includes a base portion that is pivotally fixed to an attachment portion. The base portion is structured for being fixed to a foot blade, while the attachment portion is structured for fixing the prosthetic ankle apparatus to a lower leg portion of a prosthetic limb. The prosthetic ankle is structured a computer controllable damping mechanism that is functionally and mechanically coupled between the base portion and the attachment portion. The damping mechanism enables a damping level to be selectively applied to lightly damp or heavily damp a relative motion between the base portion and the attachment portion as a user is walking to provide an auto-adjusting of the prosthetic ankle to changes in a ground surface being traversed and during various stages of a walking cycle.

Probable Assignee: GLOBESPAN VIRATA INC

Earliest Publication Date: 20020903



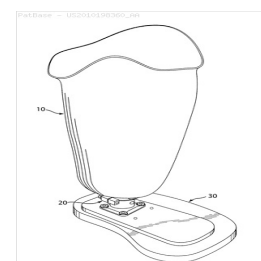
60) Family number: 46422311 (US2010198360A)

FORESHORTENED PROSTHETICS FOR BILATERAL LEG AMPUTEES

Abstract: Source: US2010198360A A foreshortened prosthesis comprising a socket, an adapter attached distally to said socket, and a foot attached to the adapter. The foot comprises a lower base plate formed as a flat peripherally-curved member fixedly attached to the adapter and defining a short toe, a longer heel, and an instep there between. In addition, an upper slide plate is sandwiched between the adapter and lower base plate, but is not otherwise attached to the lower base. The upper slide plate is smaller and narrower than the lower base plate and slides there against under the weight of a heel strike, thereby serving as a leaf spring damper and suspension to smooth ambulation. This provides a BAK amputee with a more comfortable and natural gait, at a suitable angle and orientation, with smooth and comfortable flex relative to the direction of travel.

Probable Assignee: MANTELMACHER H LEE

Earliest Publication Date: 20100805



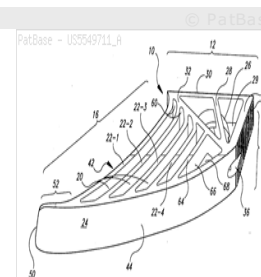
61) Family number: 8509177 (US5549711A)

PROSTHETIC FOOT AND KEEL THEREFOR HAVING PROGRESSIVE STIFFENING UNDER INCREASING LOAD

Abstract: Source: US5549711A A prosthetic foot having a keel formed by a flexible sole plate connected to the lower end of an ankle portion that is attachable to a user's leg or leg prosthesis. A plurality of resilient bending ribs extend from the ankle portion to spaced apart locations on the upper surface of the sole plate to resiliently bias the sole plate to a neutral configuration. As the forward portion of the sole plate is progressively loaded, the sole plate flexes causing the bending ribs to deflect until they successively stack up against each other, thereby progressively stiffening the keel.

Probable Assignee: SEATTLE ORTHOPEDIC GROUP INC

Earliest Publication Date: 19950406



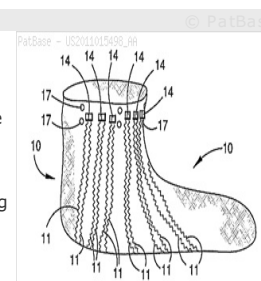
62) Family number: 42979958 (US2011015498A)

SYSTEM, GARMENT AND METHOD

Abstract: Source: US2011015498A The present invention relates to a system and garment that incorporates sensors that can be used for measuring or monitoring pressure or forces in feet, the stumps of limbs of an amputee that are fitted with prosthetic devices, or any other parts of the body that are subject to forces such as the buttock while seated or when external pressure inducing devices are employed, such as for example, pressure bandages. The invention also relates to a method to monitor or diagnose any foot or limb related activity for recreational, sporting, military or medical reasons and is particularly aimed at the treatment of neuropathic or other degenerating conditions.

Probable Assignee: COMW SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

Earliest Publication Date: 20090226



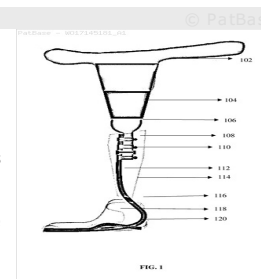
63) Family number: 66782070 (WO17145181A1)

A PROSTHETIC LEG SYSTEM

Abstract: The embodiments of the present disclosure provide a lightweight and cost-effective prosthetic leg structure using a cane assembly at distal end, which facilitates faster walking and decreased energy expenditure at similar speeds compared to a conventional foot. The prosthetic leg comprises a cane assembly of load bearing structures from the end of toes till the knee. The cane assembly comprises multiple primary load bearing structures that originate from forefoot and extend till knee. The stiffness of the cane structures are tuned such that the lateral structures have a higher stiffness and strength than the medial structures. A central heel unit is connected to the lower end and a foldable shape adapter is connected to the top end, which acts as the connecting mechanism of the prosthetic leg to the human body. The prosthetic leg's outer covering is a multi-part cosmetic shell customized as per a user's requirements.

Probable Assignee: JOSHUA CHERIAN ARUN

Earliest Publication Date: 20170831



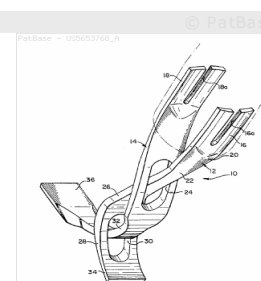
64) Family number: 13169932 (US5653768A)

DUAL CANTILEVERED LEAF SPRING STRUCTURE

Abstract: Source: US5653768A A dual cantilevered leaf spring structure may provide a prosthesis for an amputee or supplement the feel and action of a human foot and lower leg. The structure is provided with separate limb members each attachable at its top shank to a mounting platform. The shanks are preferably rigid, but the limbs become resilient and spring-like as they extend away from their mounting. One limb terminates in a toe piece and the other a heel piece. A stump socket interface provides a mounting platform having a slot receptacle and set screw holders for each shank of a limb permits the point of support to be located high off the ground and permits height and, in some cases, cant adjustment. The use of composite or stranded graphite construction flat oval tubes allows minimal width combined with considerable shaping ability which is particularly desirable for constructing braces or structures providing non-prosthetic augmentation of natural walking, running and jumping movements in shoes or boots.

Probable Assignee: KANIA BRUCE

Earliest Publication Date: 19970805



65) Family number: 1092649 (US3833941A)

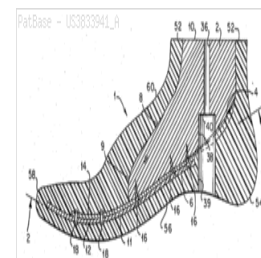
MOLDED SACH FOOT

PatBase - US3833941A

Abstract: Source: US3833941A An artificial foot having a wooden keel in the ankle portion which has a diminished heel portion, a flat arch portion, a curved instep portion, a rounded lower front end portion and a flat top; a molded soft resilient foam coating on said keel which has heel and toe portions; and a reinforcing member comprising a highly resilient synthetic resin (preferably nylon) strip secured at its rear end to said flat arch portion and its front end extending into said toe portion to give it predetermined flexibility. Coatings on exposed broad surfaces of said strip bond it to said foam coating.

Probable Assignee: WAGNER S ORTHOPEDIC SUPPLY CO

Earliest Publication Date: 19740910



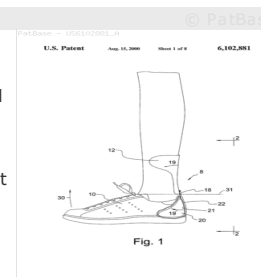
66) Family number: 12449924 (US6102881A)

HINGED DROP FOOT BRACE

Abstract: Source: US6102881A A drop foot brace includes an upper support bearing against the rear lower leg and a lower support bearing against the rear heel. A springed hinge couples the upper and lower supports and biases the upper and lower supports against the rear of the user's leg and rear of the user's heel, respectively. A shoe maintains the springed hinge against the rear of the user's leg in the vicinity of the user's ankle whereby the user experiences a lifting force in opposition to drop foot. The brace needs no coupling to the body and includes sufficient flexibility to facilitate comfort when not in use while still providing aid against foot drop. One form of the foot brace includes the heel or foot support integrally formed within a shoe and including a slot formation receiving the remaining portions of the brace whereby the brace may be easily removed from the shoe when not needed.

Probable Assignee: QUACKENBUSH TODD R

Earliest Publication Date: 20000815



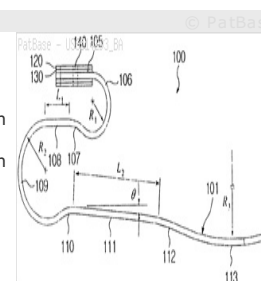
67) Family number: 15690966 (US6514293B)

PROSTHETIC FOOT

Abstract: Source: US6514293B Disclosed herewith is a prosthetic foot. The prosthetic foot is to be connected to a pylon that is utilized for the substitution of the shinbone of an amputee. The prosthetic foot includes an ankle portion to be secured to the pylon. A plurality of curved portions are extended from one end of the ankle portion. A sole portion is extended from one end of the curved portions. The ankle portion, the curved portions and the sole portion form a single integrated plate spring structure.

Probable Assignee: KOREA ADVANCED INST OF SCIENCE AND TECHNOLOGY

Earliest Publication Date: 20011009



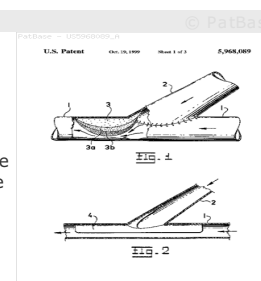
68) Family number: 11208306 (US5968089A)

INTERNAL SHIELD OF AN ANASTOMOSIS IN A VASCULAR SYSTEM

Abstract: Source: US5968089A A device, whose purpose is such internal shielding of a vascular anastomosis that undesirable perivascular vibration is avoided, is created from a stiff or possibly moderately elastic, non-resorbable, biologically inert, non-moistenable and sterilizable material. The shield has the form of an incomplete tube (4), whose length is at least five times larger than the diameter of the targeted vessel or substitute. This incomplete tube (4) in the third and fourth fifths of its length (counting counter to the course of blood flow) is provided with an orifice (5) having a width of at least one quarter of the circumference of the tube. From the apical end of the orifice (5) and/or from the rear end of the said orifice (5) projects a gradually tapered tongue-shaped structure (6, 10) which is moderately bow-curved externally. The margin (8) of the orifice (5) and all margins of the device are blunt, and the whole internal surface of the device is highly polished.

Probable Assignee: KRAJICEK MILAN

Earliest Publication Date: 19980225



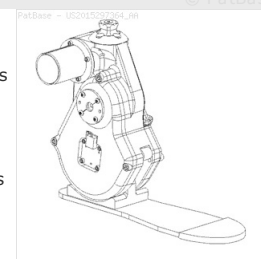
69) Family number: 56019529 (US2015297364A)

WALKING CONTROLLER FOR POWERED ANKLE PROSTHESES

Abstract: Source: US2015297364A Described herein are systems and methods for a powered ankle/foot prosthesis and controller that utilizes piecewise emulated passive impedances to provide for walking at various cadences and on various slopes and for ground slope adaptive standing. A powered prosthesis using these systems and methods is capable of emulating any physical behavior provided by the healthy joint, and additionally describes a control system that utilizes the sensing and actuation system on the prosthesis to provide appropriate ankle joint impedances. Further, the control system incorporates a finite-state-based structure, and within each state, emulates the behavior of the healthy joint with strictly passive impedance functions.

Probable Assignee: UNIV VANDERBILT

Earliest Publication Date: 20140320

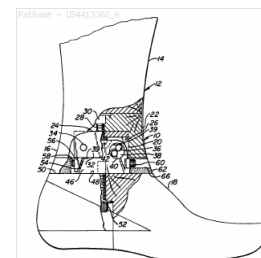


70) Family number: 3868179 (US4413360A)

ADJUSTABLE PROSTHETIC ANKLE ASSEMBLY

Abstract: Source: US4413360A An adjustable prosthetic ankle assembly for allowing the heel height of a prosthetic foot to be adjusted and secured in a position that is of optimum comfort and facility to the user, the ankle assembly has a mechanism interposed between an ankle block and a connected foot block with a pivot and associated adjustment screw for altering the fore and aft tilt of the foot block with respect to the ankle block.

Probable Assignee: LAMB STEVE R



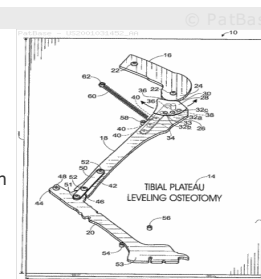
71) Family number: 28094966 (US2001031452A)

APPARATUS FOR DEMONSTRATING A SKELETAL SURGICAL TECHNIQUE

Abstract: Source: US2001031452A An apparatus for modeling a skeletal structure before and after a surgical procedure is performed on the structure. The apparatus comprises a base, the base including a generally planar surface, at least one bone member coupled to the base, the bone member representing a bone involved in the surgical procedure, and at least one bone portion movably coupled to the bone member, the bone portion representing a part of the bone involved in the surgical procedure that is repositioned in the surgical procedure from a preoperative position to a postoperative position. The bone portion may be selectively moved between a preoperative position, representing the position of the part of the bone before the surgical procedure is performed, and a postoperative position, representing the position of the part of the bone after the surgical procedure is performed. The bone member may be coupled to the base generally parallel to the surface of the base.

Probable Assignee: D BARCLAY SOLCUM TRUST AGREEMENT

Earliest Publication Date: 20011018



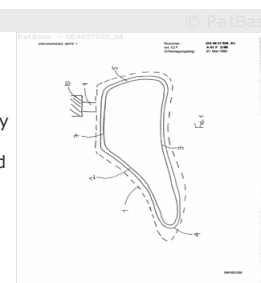
72) Family number: 8673649 (DE4037928A1)

JOINTLESS ARTIFICIAL FOOT - HAS SPRING-ELASTIC FOOT INSERT FORMED AT RING SPRING CONFORMING TO NATURAL OUTER FOOT CONTOUR

Abstract: A flat elliptical ring spring (2) is fitted inside a prosthesis body (1), and in company with the body is firmly connected via a connecting piece (9) to an artificial leg (10). The ring spring is made of a fibre union material, in which fibreglass and carbon fibre are used as reinforcements. The reinforcement is partic. strong in the heel (5) and sole (3) areas, with a simultaneously enlarged cross-section of the ring spring. In this way, in the areas of higher load, the spring constant is enlarged, and the loadability of the areas is enhanced. USE - As an artificial foot.

Probable Assignee: HMS ANTRIEBSSYSTEME GMBH

Earliest Publication Date: 19920527



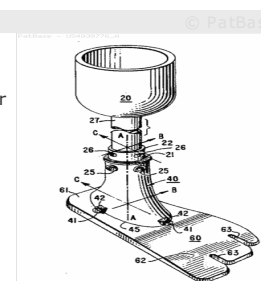
73) Family number: 3501812 (US4938776A)

INTEGRATED ANKLE AND FOOT PROSTHETIC SYSTEM

Abstract: Source: US4938776A Integrated prosthetic ankle and foot structure comprising an ankle portion of larger longitudinal dimension and smaller lateral dimension with a flexible and resilient ankle portion capable of both compression and expansion and a foot structure including a foot plate with a relatively thicker heel portion and a thinner grooved or kerfed toe part.

Probable Assignee: MASINTER ROBERT A

Earliest Publication Date: 19900703



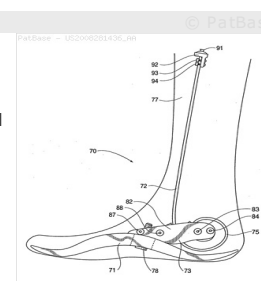
74) Family number: 43234239 (US2008281436A)

PROSTHETIC FOOT WITH TUNABLE PERFORMANCE

Abstract: Source: US2008281436A A system for a lower extremity prosthesis comprising a foot, an ankle and a shank, has a posterior calf device (169) on the prosthesis to store energy during force loading of the prosthesis and return the stored energy during force unloading to increase the kinetic power generated for propulsive force by the prosthesis in gait. The device in several embodiments includes at least one elongated member (171) such as a flexible strap extending between an upper portion of the shank and a lower portion of the prosthesis, and at least one coiled spring (170) which has a free end connected to the elongated member. The coiled spring is expanded by the elongated member in response to anterior movement of the upper end of the shank for storing energy.

Probable Assignee: BIOQUEST PROSTHETICS LLC

Earliest Publication Date: 20081113



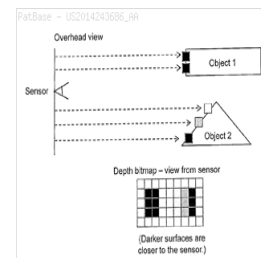
75) Family number: 53572020 (US2014243686A)

METHOD AND APPARATUS FOR DETECTING DETERIORATION OF HEALTH STATUS

Abstract: Source: US2014243686A A system for early warning of health status decline includes at least one energy emitter configured to emit energy onto a field-of-view that contains an individual, and at least one energy sensor configured to capture reflected energy from within the field-of-view. A spatial measurement module calculates spatial measurements of a surface portion of the body of the individual when the individual is either stationary or moving about in real-time, based on data from the energy sensor. A comparator module detects deviations in measurements from baseline values indicative of a deterioration in health status of the individual.

Probable Assignee: ATLAS5D INC

Earliest Publication Date: 20130425



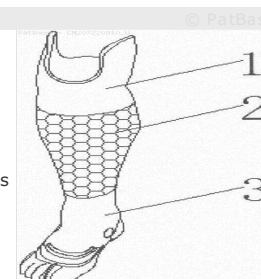
76) Family number: 69235787 (CN207220910U)

DEDICATED VENTILATIVE COMFORTABLE TYPE SHANK ARTIFICIAL LIMB OF PHYSICAL DISABILITIES

Abstract: Source: CN207220910U The utility model discloses a dedicated ventilative comfortable type shank artificial limb of physical disabilities, divide and prosthetic foot including shank deformed limb prosthetic socket, bearing part, shank deformed limb prosthetic socket, bearing part divide and prosthetic foot has constituted shank artificial limb body, shank deformed limb prosthetic socket is corresponding with patient's shank, bearing part divides on the position that sets up between shank deformed limb prosthetic socket and prosthetic foot, shank deformed limb prosthetic socket contains the shape of the mouth as one speaks, cavity and perspire passageway, the cavity comprises interior prosthetic socket and outer prosthetic socket, and just interior prosthetic socket and outer prosthetic socket adopt the strengthening rib to be connected, prosthetic foot comprises heel, lightening hole, preceding sole and toe, the lightening hole design is in prosthetic foot's inside. The utility model discloses novel structure, application scope is wide, uses comfortable safety.

Probable Assignee: HUBEI REHABILITATION ASSISTIVE TECH CENTER

Earliest Publication Date: 20180413



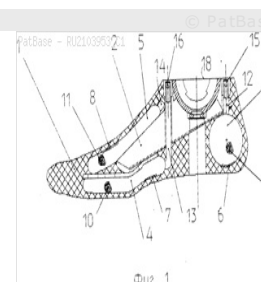
77) Family number: 14767996 (RU2103953C)

PNEUMATIC FOOT OF PROSTHESIS FOR LOWER LIMB

Abstract: Source: RU2103953C FIELD: medical engineering; prosthetics for missing limbs. SUBSTANCE: invention resides in the following: pneumatic filler of artificial foot's heel cooperates during supporting phase of patient's step with foot's shape-forming casing and framework which casing is mounted in support assembly and transmits onto it and further on onto carrying structure of shin supporting reaction of resting on heel. Spherical shape of foot's chamber ensures required rising elastic resistance to load during resting on foot's heel region. Locking devices of pneumatic fillers are grouped together on foot's upper platform. Volume and pressure in chambers are adjusted in process of adjusting prosthesis to make it suited to patient's individual specific features and they are restored in process of operation by pumping additional air. Locking device permits to perform this operation repeatedly during entire period of foot's operation, while ensuring reliable sealing of pneumatic fillers. Pneumatic foot is offered in market with complete, or partial set of pneumatic fillers depending on user's specific requirements. Thus, some functional varieties of foot are provided only with pneumatic fillers in heel region in order to impart to foot only "elastic heel" property with control rigidity whereas other varieties are provided only with pneumatic fillers in rear region of foot in order to achieve good packing of foot in shoe. EFFECT: enhanced total structural rigidity in sagittal plane of foot. 2 cl, 5 dwg oooooe1

Probable Assignee: RAKETNO KOSM KORPORATSIJA EHNE

Earliest Publication Date: 19980210



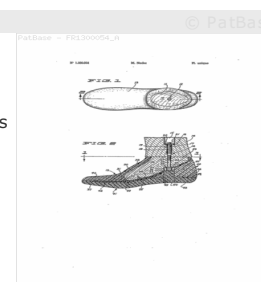
78) Family number: 23064700 (FR1300054A)

PIED PROTHETIQUE PROSTHETIC FOOT (MACHINE TRANSLATION)

Abstract: Source: FR1300054A (Claim 1) 1. Il comprend une quille ayant une partie qui s'étend vers l'avant et vers le bas, un moyen de fixation s'étendant vers le haut à partir de la quille à une position située en arrière de la partie antérieure et inférieure, et destinée à fixer le pied à une cheville prothétique, une partie supérieure du pied construite en une matière tenace mais élastique et recouvrant la partie antérieure et les côtes de la quille, et s'étendant en avant de l'extrémité la plus avancée de la quille, une semelle construite en matière élastique ayant une densité inférieure à celle du dessus et fixée au-dessous de la quille à sa partie s'étendant vers l'avant, et un secteur de talon en matière élastique ayant une densité inférieure à celle de la semelle, et fixé à l'arrière du pied entre la quille et la semelle, de façon que le pied présente des caractéristiques de marche perfectionnées avec une bonne résistance à l'usure et à l'abrasion.

Machine translation: (Claim 1) 1. It comprises a keel having a portion which extends forward and downward, a fastening means extending upwardly from the keel of a position located behind the front part and lower, and for securing the prosthetic foot has an ankle, an upper portion of the foot built in a tough but elastic material and covering the anterior part and sides of the keel, and extending forward of the foremost end of the keel, a sole constructed of resilient material having a density less than that of the fixed top and below the keel of its part extending forward, and a heel area elastic material having a density less than that of the sole, and fixed at the rear of the foot between the keel and the sole of the foot way that presents the characteristics of walking perfectionness with good resistance to the wear and abrasion.

Earliest Publication Date: 19620727



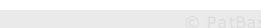
79) Family number: 22177852 (US2692990A)

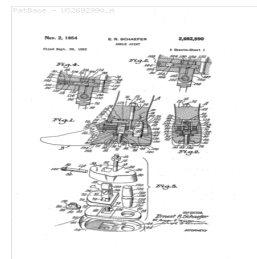
ANKLE JOINT

Abstract: Source: US2692990A (Claim 1) Hdviig thus described my invehtion, what I claim lqs ii_W _and Wish tb secure by Lettors Patent is: 1.

Probable Assignee: SCHAEFER ERNEST R

Earliest Publication Date: 19541102





80) Family number: 77679452 (IN202041003905A)

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FOOT PROSTHETIC DEVICE ASSEMBLED FROM LATTICE STRUCTURAL ELEMENTS FOR ENHANCED MECHANICAL PROPERTIES

Abstract: Source: IN202041003905A The present invention provides a foot prosthetic device (100) assembled by employing one or more lattice structural elements (101). The foot prosthetic device (100) comprises one or more lattice structural elements (101) packed closely together and arranged such that a unitary cellular lattice structure is formed. The foot prosthetic device (100) also comprises of lattice structural elements (101) that are vertically oriented and are made from a resilient plastic to provide enhanced mechanical properties. The foot prosthetic device (100) has an inverted r profile to provide proper gait pattern for the user with the heel region of the foot prosthetic device (100) being thicker as compared to the rest of the foot prosthetic device (100) to further enhance balance and support of the user.

Probable Assignee: PES UNIV

Earliest Publication Date: 20200214

81) Family number: 4341231 (US4446580A)

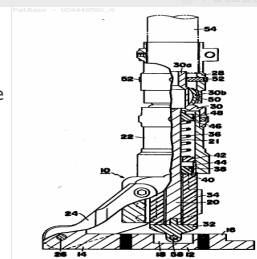
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PROSTHETIC FOOT STRUCTURE

Abstract: Source: US4446580A A foot section of the artificial limb comprising a base, a housing pivotally connected to the base to form an ankle joint, a shaft pivotally connected to the other portion of the base and extending into the housing, and a bumper device for adjusting a heel-height of the foot regardless of change of the heel-height. A pivotal axis of the housing relative to the base is positioned on a line which lies intermediate an axial line of the shaft and a toe break of the foot.

Probable Assignee: KEIAI ORTHOPEDIC APPLIANCE CO

Earliest Publication Date: 19840508



82) Family number: 43826312 (CN101536935A)

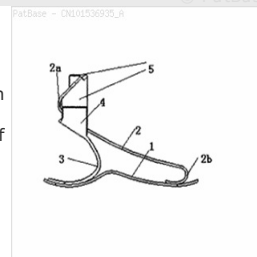
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CARBON FIBER ENERGY STORAGE PSEUDARTHROSIS PROSTHETIC FEET

Abstract: Source: CN101536935A The invention relates to a carbon fiber energy storage pseudarthrosis prosthetic foot, comprising an S-shaped upper plate, a lower plate and a connection structure. The invention is characterized in that: the invention also comprises a heel spring strip and a trapezoidal bathtub construction, the upper end of the trapezoidal bathtub construction is horizontal and is fixedly connected with the connection structure, the lower end of the trapezoidal bathtub construction slopes at a 30 degree and is fixedly connected with the heel spring strip, the small notch of the bathtub construction goes forward and the bigger notch thereof goes backward and a S-shaped upper plate which penetrates the notches is connected with the connection structure. The upper curved part of the S-shaped upper plate is combined with the trapezoidal bathtub construction to imitate subtly the transmission performance and micromotion function of intertarsal joints; the lower curved part of the S-shaped upper plate is combined with a toes part of the lower plate to imitate the dorsiflexion of metatarsophalangeal joints. The heel spring strip is provided with a backward opening and the lower part thereof is connected with the lower plate. The invention which can ensure people to stand steadily and walk for poise enjoys high strength, light weight, good elasticity and the like.

Probable Assignee: UNIV SHANGHAI SCIENCE AND TECH

Earliest Publication Date: 20090923



83) Family number: 68794565 (BR102016010161A)

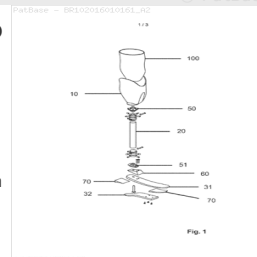
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PROCESSO DE FABRICACAO DE PROTESE TRANSTIBIAL UTILIZANDO UM COMPOSITO POLIMERICO A BASE DE BAMBU E PRODUTO OBTIDO PAPERMAKING PROCESS USING A BAMBOO TRANSTIBIAL PROSTHESIS BASED POLYMERIC COMPOSITE AND PRODUCT OBTAINED (MACHINE TRANSLATION)

Abstract: Source: BR102016010161A PROCESSO DE FABRICACAO DE PROTESE TRANSTIBIAL UTILIZANDO UM COMPOSITO POLIMERICO A BASE DE BAMBU E PRODUTO OBTIDO E descrita a invencao de um processo de fabricacao de protese transtibial utilizando um composito polimerico a base de bambu cujo cartucho e conformado a partir de uma matriz polimerica misturada com po de bambu, e o pe protetico a partir de ripas de bambu dispostas em camadas e solidarizadas com resina de mamona, substituindo a fibra de carbono e outros materiais sinteticos comumente utilizados na fabricacao de proteses, sem alteracoes expressivas no que se refere a utilizacao, resistencia e estetica. Peticao 870160017842, de 05/05/2016, pag. 23/23 Papermaking PROCESS USING A BAMBOO TRANSTIBIAL PROSTHESIS BASED POLYMERIC COMPOSITE AND PRODUCT OBTAINED is described the invention of a papermaking process using a bamboo transtibial prosthesis based polymeric composite whose cartridge is formed from a polymer matrix blended with bamboo and prosthetic foot from bamboo slats disposed in layers and solidarizadas with resin castor, replacing carbon fiber and other synthetic materials commonly used in the fabrication of prosthetics, without significant changes as regards the use, strength and aesthetics. The 870160017842 repeat 05/05/2016, pp. To

Probable Assignee: UNIV ESTADUAL PAULISTA JULIO DE MESQUITA FILHO

Earliest Publication Date: 20171107



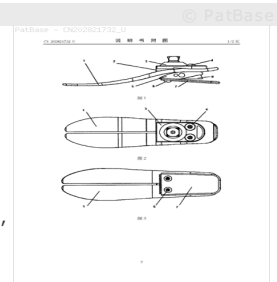
84) Family number: 53348523 (CN202821732U)

LOW-ANKLE ENERGY STORAGE ARTIFICIAL FOOT CORE

Abstract: Source: CN202821732U The utility model relates to a low ankle-foot prosthetic foot storage core, which comprises a metal ankle connectors, metal ankle bottom sequentially from top to bottom connector is provided with a carbon fiber chassis, carbon fiber and metal with a block heel-shaped piece consisting of structure in which the connector between the front portion and the metal ankle carbon fiber front plate is provided with a central buffer block after block is provided between the metal with carbon fiber rear heel piece central buffer block; the utility model user in the palm heel and foot pedal off of the process, the carbon fiber chassis and carbon fiber heel piece elastic deformation resilience helps after walking foot core was added to the front and rear buffer block buffer block, causing the foot to solve the core when the user weight gain or weight was too much height The disadvantage reduced, greater stability, the overall height of the foot of the core is not more than 60 mm, even ankle disarticulation amputees can be fitted, the broader range of applications, has a long life, stability and applicability, applicable and the advantages of a wide range of low-cost production.

Probable Assignee: XIE HUA

Earliest Publication Date: 20130327



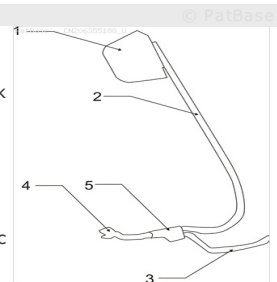
85) Family number: 66485077 (CN206355188U)

FINE PROSTHETIC FOOT OF W TYPE CARBON

Abstract: Source: CN206355188U The utility model provides a fine prosthetic foot of W type carbon, includes shank support and sole support, the shank support includes bracing piece and back of the body cover, back of the body cover is the arc sheath, and there is the design piece both sides, and peripheral parcel of design piece has the cushion, and design piece middle part is connected with the bracing piece, and bracing piece and sole leg joint, sole support include that the heel encircles cover and the preceding end links cover of foot, and the preceding end links cover of heel ring cover and foot passes through plug -in connection spare to be connected, the utility model provides a poor problem of present artificial limb equilibrium, the utility model discloses still adopted W type sole support, it can not influence its equilibrium to make prosthetic foot do various actions, has more protected prosthetic foot, just the utility model has the advantages of simple structure the practicality has very big market spreading value.

Probable Assignee: GUANGZHOU KANGMEITE PROSTHESES CO LTD

Earliest Publication Date: 20170728



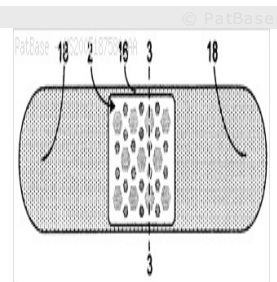
86) Family number: 32193461 (US2005187580A)

CURRENT PRODUCING SURFACE

Abstract: Source: US2005187580A In an embodiment, an article includes a primary surface, and a pattern of spaced dissimilar materials, on the primary surface. The pattern is to spontaneously produce electrical surface currents when brought into contact with an electrically conducting solution.

Probable Assignee: VOMARIS INNOVATIONS INC

Earliest Publication Date: 20050825



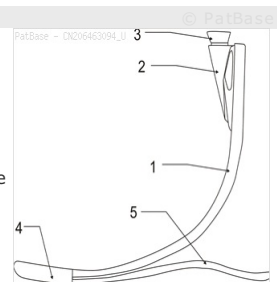
87) Family number: 66843051 (CN206463094U)

FINE PROSTHETIC FOOT OF UNIVERSAL ENERGY STORAGE CARBON

Abstract: Source: CN206463094U The utility model provides a fine prosthetic foot of universal energy storage carbon, includes the sole and installs the ankle of deciding on the sole through the bolt, it has the connecting piece to decide the ankle top, has the connecting rod on the connecting piece, has the screw in the connecting rod, the sole includes base plate and heel elastic plate, the base plate with decide the bolted connection of ankle through setting up at the base plate tail end, the base plate front end has a packet toe cover, the package toe overlaps to be connected with the heel elastic plate, the heel elastic plate extends to the base plate end, the utility model discloses a carbon fiber board as base plate and heel elastic plate, greatly increased its life, and carbon fiber board's elasticity is high, is expert at to have good luck gravity and push down to the heel elastic plate terminally, energy storing board has anti - spring action in shank when lifting the foot, makes people's walking more laborsaving, running, foot side enstrophe, turning up and can not the disequilibrium during dorsiflex, greatly increased body balance nature, just the utility model discloses a branch toe formula structure, more help children to walk, for its walking provide stability.

Probable Assignee: GUANGZHOU KANGMEITE PROSTHESES CO LTD

Earliest Publication Date: 20170905

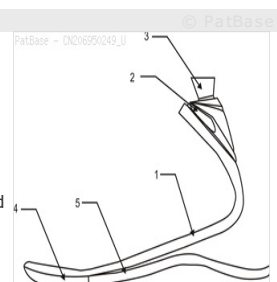


88) Family number: 68446090 (CN206950249U)

FINE PROSTHETIC FOOT OF V TYPE CARBON

Abstract: Source: CN206950249U The utility model provides a fine prosthetic foot of V type carbon, includes the sole and installs the ankle of deciding on the sole through the bolt, it has the connecting piece to decide the ankle top, has the connecting rod on the connecting piece, has the screw in the connecting rod, the sole includes base plate and heel elastic plate, the base plate with decide the bolted connection of ankle through setting up at the base plate tail end, there is the buffer board base plate front end below, heel elastic plate and buffer board are hugged closely, the heel elastic plate extends to the baseplate end, the base plate is V type base plate, the V type contained angle of base plate is 30 degrees to the minimum, the utility model discloses a carbon fiber board as base plate and heel elastic plate, greatly increased its life, just the utility model discloses a base plate adopts V type structure, is expert at to have good luck gravity and push down to the heel elastic plate terminally, and heel elastic plate and base plate have anti - spring action in shank when lifting the foot, and it is more laborsaving to make the people walk.

Probable Assignee: GUANGZHOU KANGMEITE PROSTHESES CO LTD



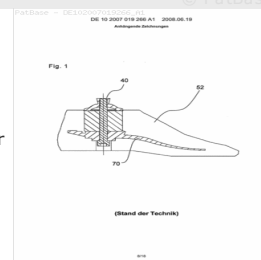
Earliest Publication Date: 20180202
89) Family number: 41917175 (DE102007019266A1)

REINFORCING INSERT FOR PROSTHETIC FOOT HAS A SANDWICH CONSTRUCTION FOR FLEXIBILITY AND SUPPORT

Abstract: An improved reinforcing insert for a prosthetic foot has a shaped main section with a sandwich construction to simulate the flexibility of a normal foot without losing support. The upper and/or lower layers are reinforced with fibers, e.g. carbon fibers and with a plastic core layer which can include a foamed section. The upper and/or lower layers can also include a matrix of thermoplastic such as polyamide. The insert is coated with plastic foam shaped as a normal foot.

Probable Assignee: ORTHO REHA NEUHOF GMBH

Earliest Publication Date: 20080619



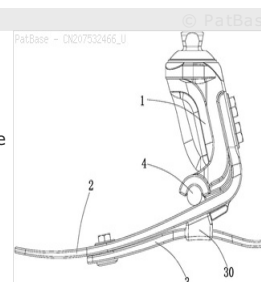
90) Family number: 70211958 (CN207532466U)

ENERGY STORAGE FOOT

Abstract: Source: CN207532466U The utility model relates to an energy storage foot, include that prosthetic foot accepts the seat, upward sole, lower sole ease up strong, it has sole portion and connecting portion to go up the sole, connecting portion fixed connection is on accepting a body, the one end fixed connection of lower sole is on the middle part of the sole portion bottom surface of last sole, and the other end extends and be the arc of down buckling toward the heel department of sole portion for it is disjuncture in heel department to go up sole and sole down, bolster fixed mounting is accepting a body on to the top surface of this bolster and last sole offsets, the position that bolster and last sole contacted is located sole portion to close on in heel department, this energy storage foot increases buffer structure accepting between a body and the last sole, makes carbon fiber board's stress dispersion have better energy storage and energy release effect.

Probable Assignee: BONAWEI REHABILITATION DEVICES CO LTD

Earliest Publication Date: 20180626



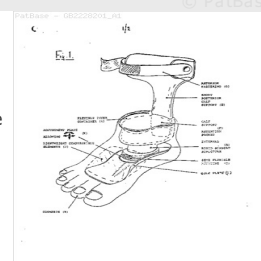
91) Family number: 6607593 (GB2228201A)

A SELF-SUSPENDING PROSTHESIS FOR A LONG BELOW-KNEE STUMP

Abstract: Source: GB2228201A The invention concerns a prosthesis for use by amputees who have a long below-knee stump, the prosthesis being constructed to include retention means in the form of a flexible container (A) which fits snugly on the stump, a rigid support structure (B) connected to a sole plate (C) whereby forces across the prosthesis-stump interface are effectively transmitted so as to allow the user to stand and walk, and cosmetic covering means (H) for giving the prosthesis pleasing external cosmetic characteristics.

Probable Assignee: STEEPER HUGH LTD

Earliest Publication Date: 19900822



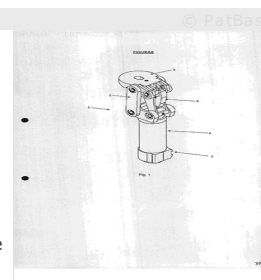
92) Family number: 57609566 (CO7060223A)

ARTICULACION ARTIFICIAL POLICENTRICA PARA MIEMBROS INFERIORES POLYCENTRIC ARTIFICIAL JOINT FOR LOWER LIMB (MACHINE TRANSLATION)

Abstract: Source: CO7060223A La presente solicitud de patente de invencion se refiere a una articulacion artificial de rodilla de mecanismo policentrico para miembro Inferior amputado. El mecanismo comprende un mecanismo multibarra compuesto de al menos 4 barras que soportan un bloque superior de conexcion. La configuracion disenada presenta al menos cinco ejes de rotacion, cuatro de estos dispuestos entre los bloques de conexcion formando un anillo, mientras y un eje adicional que se presenta en la union del mecanismo de accionamiento. La configuracion anterior brinda una mayor libertad en el movimiento de flexion y extension de la articulacion. El movimiento de la articulacion es accionado por un piston hidraulico, donde se inserta una barra de vinculacion entre un bloque superior y el piston. La inclusion de una barra de vinculacion, genera un punto de giro adicional, lo cual permite que la articulacion de la presente invencion, presente dos modos de funcionamiento; un modo de funcionamiento en la fase de impulsion y el modo en la fase de apoyo. La accion multiaxial de la articulacion se compone de movimientos de rotacion y deslizamiento. En la fase de apoyo, las barras posteriores oscilan en torno a los ejes inferiores, el centro Instantaneo de rotacion varia con la posicion de flexion. A medida que se alcanza la fase de flexion, la protesis alcanza mayor estabilidad mediante el desplazamiento del centro de rotacion a un punto posterior de la linea de carga. En comparacion con las articulaciones de la rodilla normales, la estabilidad de la rodilla de la presente invencion, es significativamente mayor en la fase de flexion. La rodilla de la presente Invencion presenta un diseno tal que es posible utilizar materiales de mas facil acceso y mucho mas faciles de manipular, tal como lo son las aleaciones de aluminio. Lo anterior se consigue reforzando los puntos de mayor esfuerzo, encontrados mediante pruebas de esfuerzo y simulaciones. Con este metodo tambien se consigue reducir la cantidad de material lo cual implica no solo una reduccion en costos, sino tambien una reduccion del peso de la protesis. (Ver figura 1) The present invention patent application relates to an artificial knee joint mechanism polycentric lower limb amputated. The mechanism comprises a multibar mechanism composed of at least 4 rods supporting an upper connection block. The designed configuration has at least five axes of rotation, four of these arranged between the connection blocks form a ring, while an additional axis and is presented at the junction of the drive mechanism. The above configuration provides greater freedom in the movement of flexion and extension of the joint. The joint motion is actuated by a hydraulic piston, where a bar linkage between an upper block and the piston is inserted. The inclusion of a bar linkage generates an additional point of rotation, allowing the joint of the present invention, this two modes of operation; a mode of operation in the swing phase and how the stance phase. The joint action of multiaxial consists of rotation and sliding. In the stance phase, subsequent bars hover around the lower shafts, the instant center of rotation varies with the position of flexion. As the flexion phase is reached, the prosthesis achieves greater stability by moving the center of rotation at a later point in the load line. Compared with normal knee joints, the knee stability of the present invention, is significantly higher in the flexion phase. The knee of the present invention has a design such that it is possible to use materials more accessible and much easier to handle, as are aluminum alloys. This is achieved by reinforcing the points of greatest stress, found by stress tests and simulations. With this method also is possible to reduce the amount of material which implies not only a reduction in costs but also a reduction of the weight of the prosthesis. (see Figure 1)

Probable Assignee: IND MILITAR INDUMIL

Earliest Publication Date: 20140919

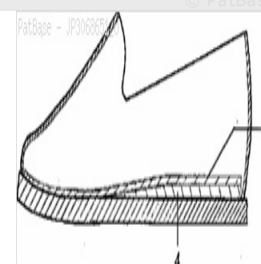


SHOES FOR THE APPLICATION - REHABILITATION (MACHINE TRANSLATION)

Abstract: Source: JP3068651U

Machine translation: [summary] By people fitted with a cast or prosthetics and orthotics foot Purpose is to remove the insole to fit the symptoms of the disorder on either side, the structure of the shoe which makes it possible to wear without straining the foot is proposed. In the shoe is provided having an inclination between the insole heel toe from [configuration], soles of shoes is a body structure having a uniform thickness from heel to toe, lower limb unaffected side by a removable insole shoes for lower limb rehabilitation was possible to the affected side of the street how to wear a pair of two in both the left and right.

Earliest Publication Date: 20000516



PROSTHETIC FOOT WITH MOVABLE ANKLE AND HEIGHT ADJUSTABLE HEEL

Abstract: Source: CN201179127Y The utility model relates to a pair of artificial feet, in particular to a pair of high-heel artificial feet with adjustable movable ankles. The artificial feet comprise baseboard cores and joints that are used for connecting with artificial limbs, and a regulating mechanism that is used for regulating an included angle between the baseboard core and the horizontal plane is arranged between the joints and the baseboard core. The artificial feet have the characteristics of simple structure, low cost, and convenient operation, and are capable of satisfying the pursuit of beauty for people and successively provides the technical proposal that the artificial feet can wear a pair of high-heel shoes.

Probable Assignee: HONGJIAN QU

Earliest Publication Date: 20090114

