

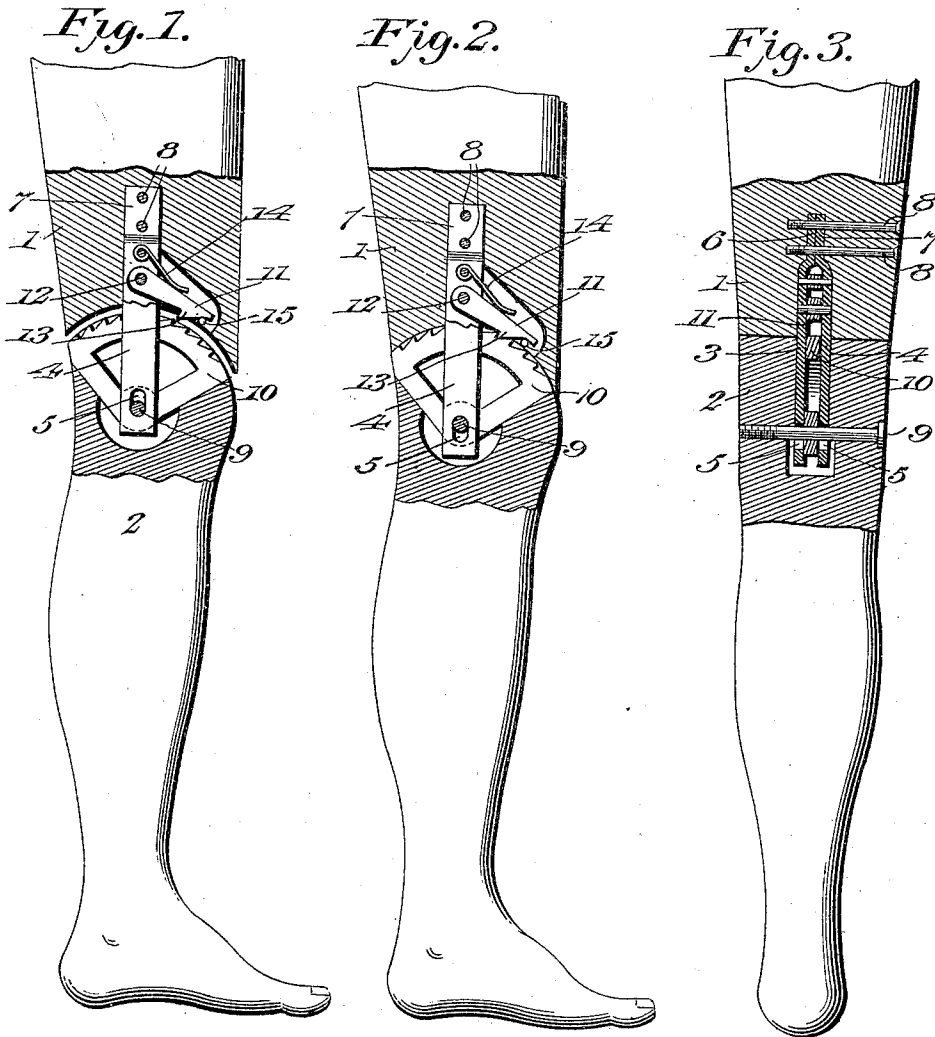
No. 688,936.

Patented Dec. 17, 1901.

D. DEVOL.
ARTIFICIAL LIMB.

(Application filed Apr. 13, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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ARTIFICIAL LIMB.

SPECIFICATION forming part of Letters Patent No. 688,936, dated December 17, 1901.

Application filed April 13, 1901. Serial No. 55,779. (No model.)

To all whom it may concern:

Be it known that I, DAVID DEVOL, a citizen of the United States, residing at Grandbay, in the county of Mobile and State of Alabama, have invented new and useful Improvements in Artificial Limbs, of which the following is a specification.

This invention relates to improvements in artificial legs, and is more particularly designed as an improvement in an automatic lock for the knee-joint of the leg.

The object of the present invention is the provision of simple but effective means for controlling the knee action of an artificial leg and to effectually lock the thigh-section with the calf-section to insure a rigid position of the leg at the proper time and a free pivotal movement of the lower or calf section when the weight of the person is removed from the said section.

With these general objects in view the invention consists, substantially, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings, Figure 1 is a view, partly in section and partly in side elevation, of an artificial leg embodying the present invention, the calf-section thereof being in its released position occasioned by gravity. Fig. 2 is a similar view illustrating the calf-section interlocked with the thigh-section, and Fig. 3 is a vertical transverse sectional view taken on a plane at right angles to that of Figs. 1 and 2.

Referring to the drawings, the numeral 1 designates the upper or thigh section, and 2 the lower or calf section, of an artificial leg, each of said sections being recessed to receive the mechanism constituting the herein-described lock. The sections 1 and 2 are connected through the medium of plates or hangers 3 and 4, which hangers are provided at their lower ends with elongated slots 5, the upper portions of said hangers being bent to form abutting flanges 6 and 7.

The hangers 3 and 4 are secured together at their upper ends and maintained within the thigh-section 1 by screws 8, and the lower ends of said hangers are connected to the calf-section 2 by a screw-bolt 9, which lies

within and extends through the slots 5 of said hangers.

Mounted upon the bolt 9, between the hangers 3 and 4, is a toothed quadrant 10, and arranged above said quadrant is a dog 11, which is pivotally secured upon a cross-pin 12, arranged in said hangers, and said dog is provided with a tooth 13, which is adapted to engage the teeth of the quadrant 10.

In order to maintain the dog 11 in engagement with the teeth of the quadrant 10, a spring 14 is employed, and said spring is arranged above said tooth and is designed for forcing the dog downwardly and into engagement with the teeth of the quadrant 10 when the weight of the person is upon the calf-section 2.

The numeral 15 designates a transversely extending pin arranged in the upper or thigh section 1 and in the path of movement of the dog 11, and said pin is designed to limit the downward movement of said dog and to retain the dog in position for engagement when the weight of the wearer rests upon the foot.

With the foregoing elements arranged in the relation described and shown the operation of the leg is as follows: When the thigh-section 1 is released and the weight of the person thereby removed from the calf-section 2, it is obvious that said calf-section gravitates, the slots 5 permitting such movement, and with the gravitation of the section 2 it is also apparent that the teeth of the quadrant 10 are removed from the dog 11. The calf-section 2 is thereby capable of a free swinging movement, and such movement will permit the free movement of the leg in a forward direction. If a step has been taken and the weight is thrown upon the thigh-section 1, the latter descends until the upper ends of the slots 5 rest upon the bolt 9, and in said movement it will be seen that the dog 11 is brought into engagement with the teeth of the quadrant 10. As the thigh-section is bent upon the calf-section the dog 11 rides over the teeth of the quadrant 10 in a forward direction, thereby locking the two sections in intimate relation with each other; but it will be seen that rear movement of the dog is precluded by reason of its engagement with the said teeth.

It is obvious that various other forms of

locking devices might be substituted for that herein shown and described, and the right is therefore reserved to modify and vary the invention as falls within the spirit and scope thereof, the gist of which is a joint provided with a lock so constructed as to permit and limit separation of the calf and knee sections.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an artificial leg, the combination with the thigh and calf sections; of hangers arranged between said sections for connecting the same, said calf-section being capable of a limited sliding movement upon said hangers; and means for interlocking the sections when the weight is upon the calf-section.

2. In an artificial leg, the combination with the calf and thigh sections; of hangers arranged intermediate said sections and provided with elongated slots; of a toothed quadrant carried by the calf-section; a bolt pass-

ing through said slots and said quadrant; and a dog carried by the thigh-section and adapted to engage said quadrant; the slots of the hangers being adapted to permit gravitation of the calf-section for releasing the quadrant from engagement with the dog.

3. The combination with the calf and thigh sections, each of which is recessed, of a pair of hangers secured to said sections; and provided at their lower ends with elongated slots; a toothed quadrant carried by the calf-section; a pivot for the calf-section passing through said slots and said quadrant; a dog carried by the thigh-section; and a transverse pin arranged in the path of movement of said dog for limiting its downward movement.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID DEVOL.

Witnesses:

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DORA BRIGHT.