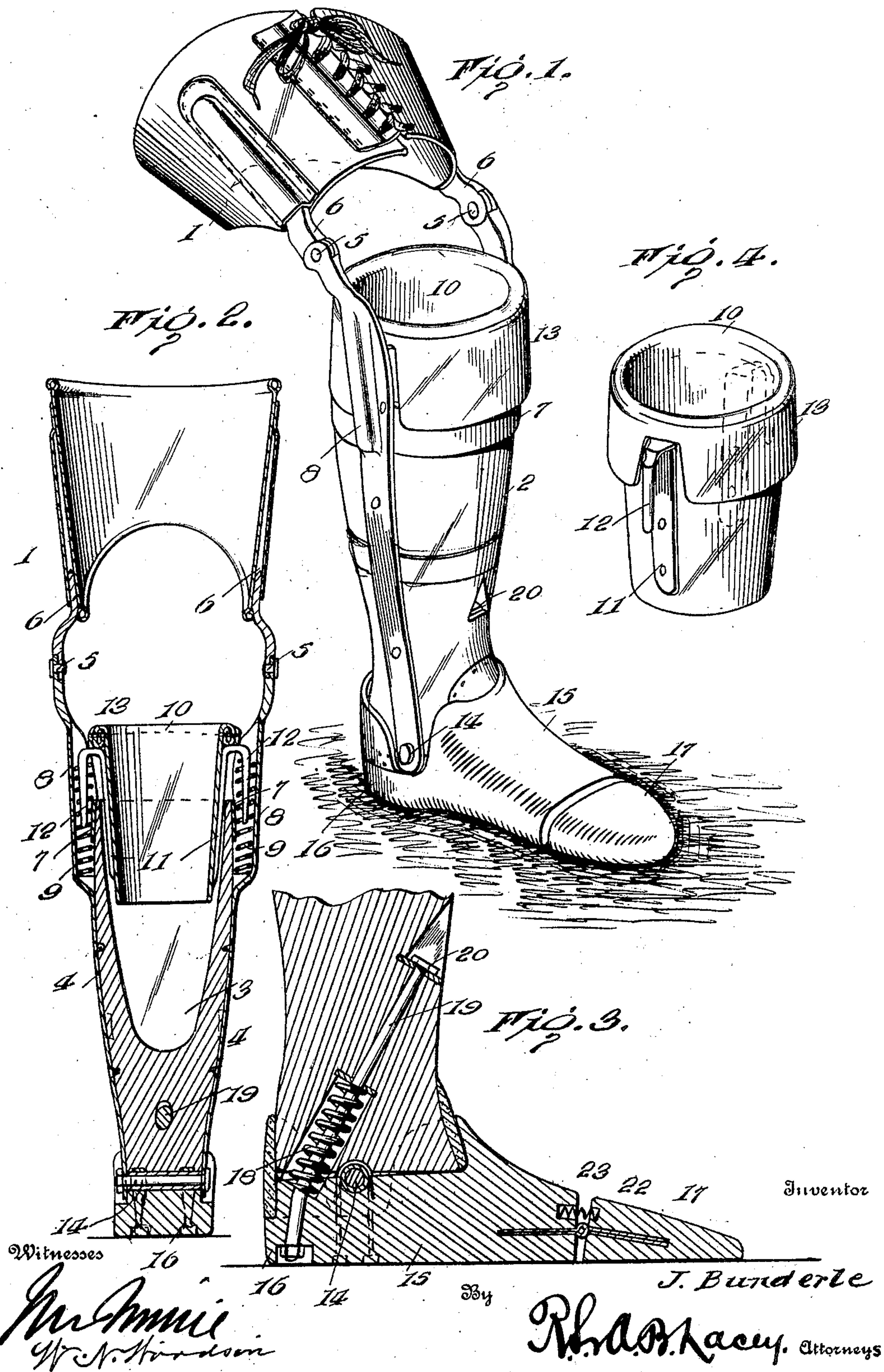


No. 804,207.

PATENTED NOV. 14, 1905.

J. BUNDERLE.
ARTIFICIAL LEG.

APPLICATION FILED APR. 6, 1906.



UNITED STATES PATENT OFFICE.

JOHN BUNDERLE, OF JACKSON, MINNESOTA.

ARTIFICIAL LEG.

No. 804,207.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed April 6, 1905. Serial No. 254,179.

To all whom it may concern:

Be it known that I, JOHN BUNDERLE, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Minnesota, have invented certain new and useful Improvements in Artificial Legs, of which the following is a specification.

This invention consists of new and novel improvements in the construction of artificial legs, the device embodying the invention being particularly designed for use where the amputation is between the knee and the ankle.

In carrying out the invention the artificial leg is comprised of the three sections usually employed—the femoral section, the tibial section, and the foot-section—the said parts being peculiarly combined and constructed to render the device more serviceable than the majority of the present devices, and one which when in use will promote the ease and comfort of the wearer to the greatest extent possible.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a perspective view of an artificial leg embodying the invention. Fig. 2 is a vertical sectional view. Fig. 3 is a vertical sectional view taken at a right angle to Fig. 2, partially broken away. Fig. 4 is a detail perspective view of the cap of the tibial section.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the construction of the artificial leg, the numeral 1 designates the thigh-section, which is composed of a casing to embrace the thigh of the wearer and adapted to be laced thereabout so as to permit variation in the capacity of this part in a manner which will be readily apparent. The section 1 may be provided with suitable means for attaching the shoulder-straps, the latter not being illustrated.

The tibial section 2 comprises a body, which may be of wood, of hollow formation, as shown at 3, and extending upwardly from the section 2 at opposite sides are bars 4, which are comprised in the frame structure of the

section 2, said bars 4 having pivotal connection, as shown at 5, with side bars 6 of the thigh or femoral section 1. The pivoted sections 5 form the knee-joint for the artificial leg in a manner readily apparent, and the upper portions of the bars 4, near the upper extremity of the body of the section 2, are connected by a band or ring 7, which increases the rigidity of the tibial section in an obvious manner. Adjacent the ring or band 7 the bars 6 are formed with longitudinal guide-sockets 8, in which are mounted coil-springs 9. The springs 9 cooperate to form a cushion-support for a socket member 10, in which the stump of the amputated leg of the wearer is received, this socket member being composed of a hollow body, preferably open at both ends. Plates 11 are attached to opposite sides of the socket member 10, and spaced from the plates 11 and carried thereby are vertically-arranged guide members 12, adapted to move longitudinally in the sockets 8 of the bars 4. The springs 9, which are preferably of the coil type, as above mentioned, receive the guide member 10 within the body of the coils thereof, and said springs cooperate with the plates or elements 11 to afford a spring-support for the socket member 10, as above described. In other words, the socket member 10 is supported upon springs which are carried by the tibial section 2, and the body of the socket member is arranged for movement within the hollow portion 3 of said section 2, so that the natural leg is relieved of any shock incident to the use of the artificial leg, all such being absorbed by the spring-supports for the socket member 10. It is preferred that the socket member 10 be provided with a cap 13, secured at the upper portion to the socket member and spaced from the sides of the socket member, so as to receive the upper portion of the tibial section 2 as the socket member moves upwardly and downwardly when the weight of the wearer of the device is received thereon under actual working conditions. The socket member 10 is preferably made of rawhide or leather or of any light stout material. The body of the tibial section 3 also is preferably covered with rawhide in the event the same is made of wood or the like. The side bars 4 extend beyond the lower extremity of the tibial section 2 and are provided with openings through which is passed a pintle member 14, which may be a

bolt or the like, said pintle member connecting the bars 4 with the foot-section 15.

The foot portion of the artificial leg is preferably composed of the heel-section 16 and the toe-section 17, and the pintle member 14 affords a pivotal joint between the foot portion 15 and the tibial section 2, which corresponds with the ankle-joint of the natural leg. A spring 18 is interposed between the rear portion of the heel-section 16 and the lower extremity of the section 2, said spring being preferably of the coil type and held in place by means of a rod 19, which passes through the heel-section and diagonally through the tibial section 2, said rod 19 having a head 20 at its upper extremity countersunk in the front portion of the section 2, the lower extremity of the rod being threaded to receive a nut 21. Adjustment of the nut 21 will permit variation in the tension of the spring and variation in the normal position of the heel-section with relation to the tibial section. The toe-section 17 is hingedly connected, as shown at 22, with the front portion of the heel-section 16. A spring 23 is interposed between the toe-section 17 and the heel portion 16, said spring being arranged above the hinged connection 22 before mentioned.

The parts of the invention are simply constructed and are compact and substantial, the proper working of the parts being subserved by the above. Further, the action of the several sections of the artificial leg is secured by a construction which operates closely upon the principles of the movement of the equivalent parts of the natural leg, and the whole structure is greatly advantageous for this reason, as well as for others which will be apparent to those versed in this art.

Having thus described the invention, what is claimed as new is—

1. In an artificial leg, the combination of a thigh-section, a tibial section including spaced bars, a foot-section, sockets in the spaced bars of the tibial section, springs mounted in said sockets, a socket member supported by the springs aforesaid, and guide members secured to and projected from the socket member aforesaid and operating in the sockets of the tibial section, said members resting on the springs above mentioned.

2. In an artificial leg, the combination of a thigh-section, a tibial section having sockets, a foot-section, a socket member carried by the tibial section, springs in the sockets of the tibial sections, guide members secured to the socket member aforesaid and operating in the sockets of the said tibial section, and a cap carried by the socket member in spaced relation thereto so as to receive the upper portion of the tibial section.

3. In an artificial leg, the combination of a thigh-section, a tibial section, a foot-section, said foot-section comprising heel and toe sections, a pivotal connection between the tibial section and the heel-section aforesaid, a coil-spring interposed between the heel-section and the lower extremity of the tibial section, and a connection between the tibial and heel sections passing through the spring therebetween.

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

JOHN BUNDERLE. [L. s.]

Witnesses:

D. V. HUBUTH ATZ,
J. V. MAKANICKE.