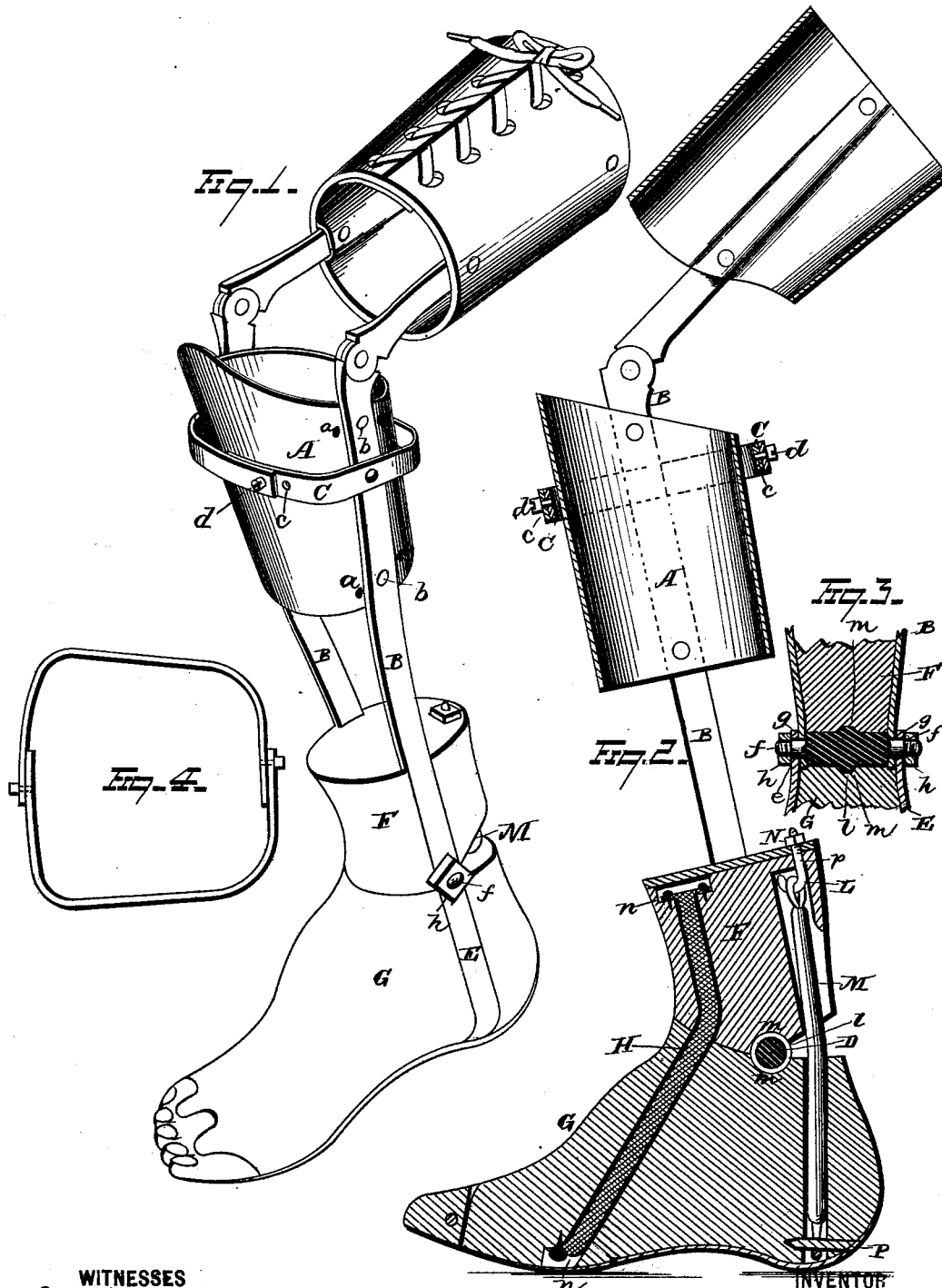


A. A. NORMAN.
Artificial Limb.

No. 221,601.

Patented Nov. 11, 1879.



WITNESSES
E. J. Nottingham.
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INVENTOR
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UNITED STATES PATENT OFFICE.

ANDREW A. NORMAN, OF CORNING, IOWA, ASSIGNOR OF ONE-HALF OF
HIS RIGHT TO JOHN KEES, OF SAME PLACE.

IMPROVEMENT IN ARTIFICIAL LIMBS.

Specification forming part of Letters Patent No. **221,601**, dated November 11, 1879; application filed
July 16, 1879.

To all whom it may concern:

Be it known that I, ANDREW A. NORMAN, of Corning, in the county of Adams and State of Iowa, have invented certain new and useful Improvements in Artificial Limbs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to artificial legs, and is designed to provide improved means whereby the ankle-joint has an easy and natural movement, and is prevented from bending or twisting sidewise.

It consists in forming the heel-stirrup independent of the leg-braces and securing the extremities of braces and stirrup to a transverse roller, having ends which project laterally from the foot, said roller ends being formed with annular shoulders having screw-threaded extremities, and provided with nuts whereby the perforated extremities of the braces and stirrup are clamped in position. The roller is further provided with a central annular projection, which fits in corresponding grooves formed in the foot and ankle.

By this construction the foot and ankle are securely jointed together, and also adapted to have independent movements.

In the drawings, Figure 1 is a view, in perspective, of the leg. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detail sectional view of the ankle-joint at right angles to the preceding view. Fig. 4 is a detail view representing the metallic band which incloses the knee-support.

Leather or other suitable material constitutes the knee-support A, and one or more vertical series of holes, *a*, are made respectively in the two meeting-edges thereof, through which the rivets *b* pass in securing said knee-support to the side braces B. These series of holes permit said support to be varied in diameter to correspond to the size of the stump; and for a similar purpose the con-

necting extremities of the two parts of the metallic band C are provided with the series of holes *c* and the fastening devices *d*. Said two parts of the band are respectively fastened to the side braces, and are adapted to firmly support the knee portion of the stump.

The ankle-joint consists of a transverse roller, D, whose extremities are each provided with annular shoulders *e* and threaded ends *f*. Eyes *g*, formed in the extremities of the side braces, and the heel metallic strap E fit over said shoulders, and nuts *h* secure the parts together.

An annular projection, *l*, is formed about the central portion of the roller, and fits in grooves *m* formed in the ankle F and the foot G. This construction operates as a tongue-and-groove joint to hold the foot and ankle securely together.

An elastic cord, H, passes through openings made respectively in the forward portion of said foot and ankle, the extremities of the cord being fastened in recesses *n*. Instead of this cord, a spiral spring may be used.

A hook, L, engages with the upper extremity of the flexible connection M, and is vertically adjusted by means of its screw-threaded shank *p*, which is provided with a nut, N. This flexible connection passes through openings made in the rear portion of the ankle and foot, and its lower extremity is secured in place by a key, P.

The knee-support A may be made in length to correspond with the stump, so that the end of the latter may project below said support, thereby preventing the stump from being chafed, and permitting free atmospheric exposure, which keeps it cool and free from sores.

The form of leg herein shown is more especially intended for stumps which are cut off below the knee. Additional supporting-strips and springs should be provided when the leg is to be used with a stump which is cut off above the knee.

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

The combination, with the transverse roller whose ends are each provided with an annular shoulder and a threaded extremity, of the side braces and the heel-stirrup, whose extremities are provided with eyes and nuts, which secure said parts together, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of July, 1879.

ANDREW A. NORMAN.

Witnesses:

C. D. KASSON,
JOHN KEES.