

No. 608,164.

Patented July 26, 1898.

A. C. WRIGHT.
ANKLE JOINT.

(Application filed Feb. 23, 1898.)

(No Model.)

Fig. 1.

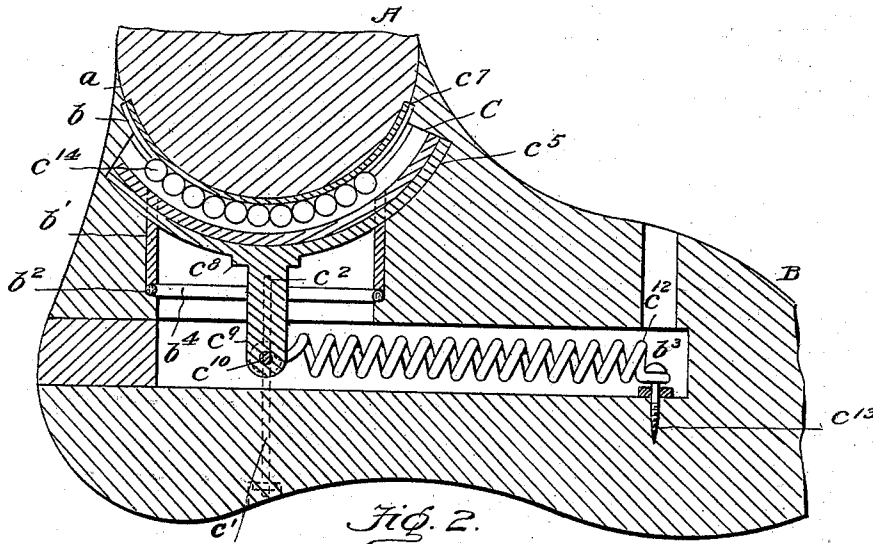


Fig. 2.

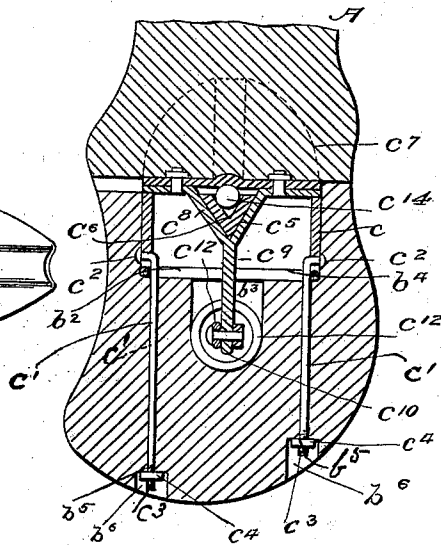


Fig. 3.

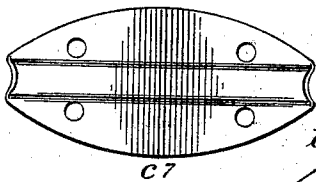
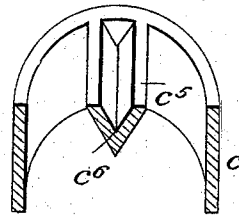


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT C. WRIGHT, OF BRITT, IOWA, ASSIGNOR OF ONE-HALF TO CLAYTON A. STUBBINS, OF SAME PLACE.

ANKLE-JOINT.

SPECIFICATION forming part of Letters Patent No. 608,164, dated July 26, 1898.

Application filed February 23, 1898. Serial No. 671,278. (No model.)

To all whom it may concern:

Be it known that I, ALBERT C. WRIGHT, a citizen of the United States, residing at Britt, in the county of Hancock and State of Iowa, have invented certain new and useful Improvements in Ankle-Joints; and I do 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.

This invention relates to an improvement in artificial limbs, and more particularly to an improved ankle-joint for use thereon, my object being to provide a simple, light, and inexpensive construction which shall have great ease and at the same time efficiently hold the foot in the desired position.

To this end the invention relates to the various matters hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation. Fig. 2 is a transverse sectional elevation on the line 2 2 of Fig. 1. Fig. 3 is a detail of the convex plate, and Fig. 4 is a detail of the lower member of the joint.

Referring now more particularly to the drawings, A represents a portion of a leg including the ankle, B a foot, and C the present ankle-joint. The bottom of the leg portion A is convex, as at *a*, and fits a corresponding concave portion *b* toward the rear of the foot B. In this rear portion of the foot is provided an opening or chamber *b'*, which at a convenient distance below the top of the opening is provided with a shoulder *b''*. A channel *b'''*, leading from the opening *b'*, extends into the foot toward the instep.

The joint, properly speaking, comprises a lower member secured to the foot and an upper member secured upon the leg. The lower member is composed of a band *c*, of metal or other suitable material of a general elliptical shape to conform to the contour of the inner wall of the opening *b* in the foot, this band resting upon the shoulder *b'*. In order to insure ease, this shoulder is preferably padded, as at *b''*, below the band *c*. Suitable stay-rods *c'*, secured to the band by means of eyes *c''* or in any other convenient manner, enter the openings *b'''* through the foot and are fas-

tened in place, thus firmly securing the band. In the present instance the free ends of the stay-rods are threaded, as at *c'''*, and are engaged by nuts *c''''*, which enter the openings *b'''* from the under side of the foot. The band *c* is concave to conform to the shape of the opening in the foot. Extending lengthwise of the lower member—i. e., in the direction corresponding with the length of the foot—is a concave cross-piece *c''*, attached at its ends to the band, this cross-piece being provided with a V-shaped channel *c'''*.

The upper member of the joint comprises a convex plate *c''*, which is secured upon the bottom of the leg by means of screws or other suitable members and is provided with a ball-race. This plate fits upon the lower member of the joint and has suitable movement thereon. A strap *c'''* upon the lower side of the plate embraces the cross-piece upon the lower member, thus holding the two parts of the joint together and at the same time permitting the plate and cross-piece to roll forwardly and backwardly upon suitable balls placed in the channel *c'''*. The strap is curved in its body portion and a slight rock therefor afforded. An arm *c''''* also extends downwardly from the strap and is provided with an eye *c'''''*. A coiled spring *c''''''*, attached at one end to the eye *c'''''* in the arm, enters the chamber formed in the foot and lies in the recess extending toward the instep, the forward end of this spring being held by a screw or other suitable member *c''''''''*. In the groove of the cross-piece upon the lower plate are placed the balls *c''''''''*, which afford a roller-bearing between the two members of the joint.

It is thought that the operation of this joint will now be apparent. The backward-and-forward movement between the two members afforded by the strap upon the top plate and the bending of the foot with relation to the leg in the movement of walking affords a movement similar to that incident to the use of a natural ankle and has been found of great ease and comfort to the wearer.

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

1. In an artificial limb, the combination with a foot-section and a leg-section, a con-

cave plate secured to the foot-section, and a
convex plate secured to the leg-section, balls
interposed between said plate, a strap secured
to the plate of the leg-section and embracing
5 the plate of the foot-section, an arm secured
to the strap, and a spring having one end se-
cured to the arm and the other end secured
to the foot-section, substantially as set forth.

2. In an artificial limb, the combination
10 with a foot-section and a leg-section, said
foot-section provided with a chamber com-
municating with a longitudinal horizontal
channel, said chamber being provided with
an offset or shoulder, a convex plate secured
15 to the leg-section and provided with a groove,
a convex plate having a depending band or
collar located within the chamber and seated

upon the shoulder, and provided with a
groove, balls arranged in said groove, a band
secured to the convex plate and embracing 20
the concave plate, an arm secured to the band,
and a coiled spring, one end of which is con-
nected to the free end of the arm and has its
other end projecting into the longitudinal
channel and secured therein, substantially as 25
set forth.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

ALBERT C. WRIGHT.

Witnesses:

WILLIAM E. BRADFORD,
CLARA FITZSIMMONS.