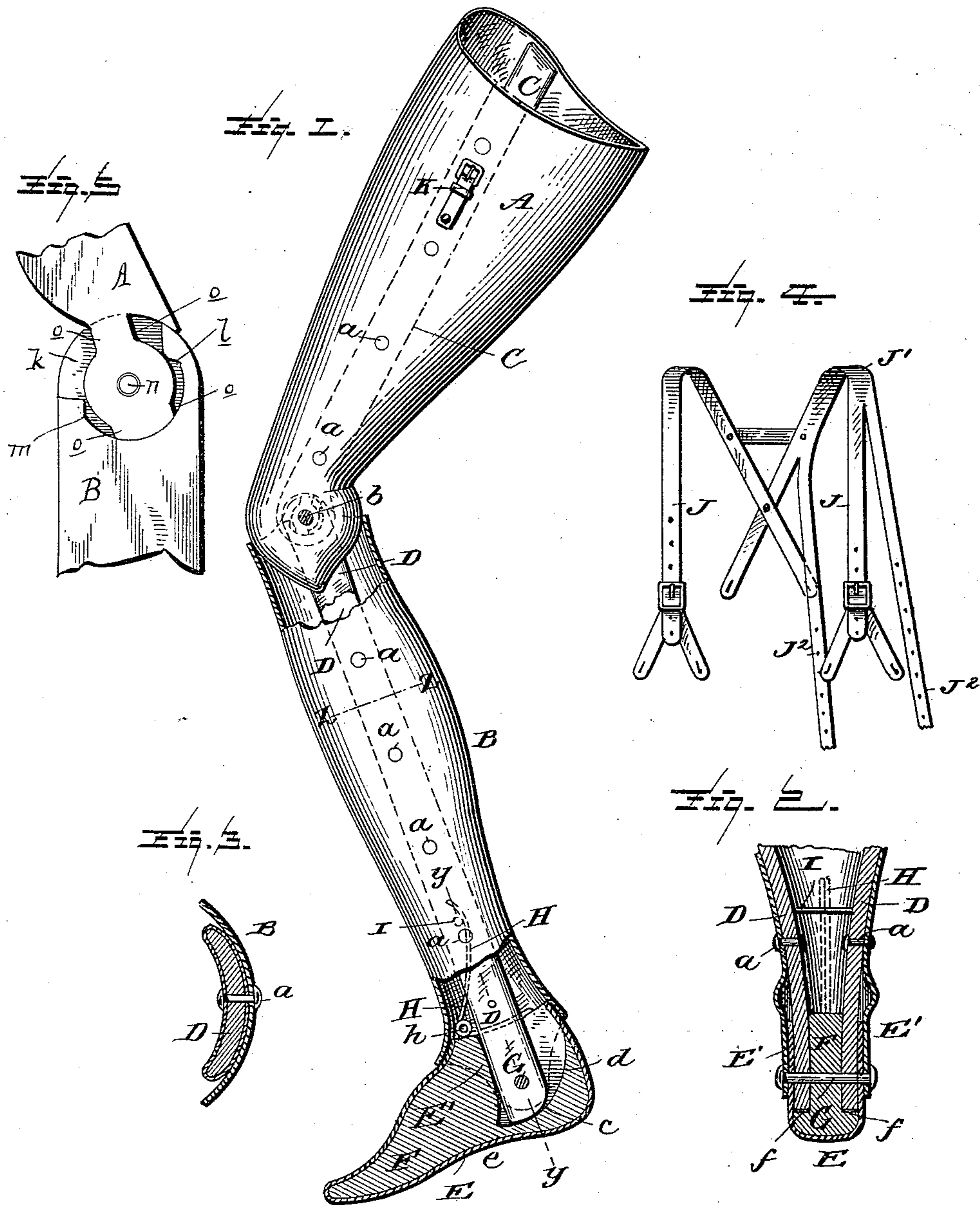


(No Model.)

T. SPARHAM.
ARTIFICIAL LIMB.

No. 452,048.

Patented May 12, 1891.



Witnesses
L. C. Mills.
E. H. Bond.

Inventor
Terence Sparham, M.D.
E. B. Stocking
Attorney

UNITED STATES PATENT OFFICE.

TERENCE SPARHAM, OF BROCKVILLE, CANADA, ASSIGNOR OF ONE-HALF
TO T. J. B. HARDING, OF SAME PLACE.

ARTIFICIAL LIMB.

SPECIFICATION forming part of Letters Patent No. 452,048, dated May 12, 1891.

Application filed August 21, 1890. Serial No. 362,618. (No model.)

To all whom it may concern:

Be it known that I, TERENCE SPARHAM, a subject of the Queen of Great Britain, residing at Brockville, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Artificial Limbs, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in artificial limbs; and it has for its object, among others, to provide the limb with skeleton ribs extending longitudinally and at each side of the limb and
15 having joints at the knee and ankle, said ribs being rigidly secured to the thigh and leg portions of the limb. The ribs are preferably covered with rawhide or some analogous material.

20 It has for a further object to provide a filling for the foot, said filling having recesses in which the stiffening-ribs are secured.

It has for its object, also, to provide a harness for the support of the limb, so that the weight
25 thereof may be sustained or carried by the shoulder of the wearer.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

30 The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

35 Figure 1 is a side elevation with parts broken away and parts in section. Fig. 2 is a longitudinal section on the line $y y$ of Fig. 1. Fig. 3 is a cross-section on the line $z z$ of Fig. 1, and Fig. 4 is a perspective view of the harness detached. Fig. 5 is an enlarged detail
40 of the joint.

Like letters of reference refer to like parts in all the figures of the drawings.

Referring now to the details of the drawings by letter, A designates the thigh portion
45 of the limb, which is constructed of rawhide and connected with the leg portion B, also formed of rawhide, by any suitable or well-known form of joint—such, for instance, as
50 that illustrated in Fig. 1.

Careskeleton ribs extending longitudinally within the thigh and leg portions at each side thereof and rigidly secured thereto in any suitable manner—for instance, by securing means a . These ribs are pivotally connected
55 or jointed at the knee, as shown at b , and at the lower ends are connected in a manner hereinafter described. These ribs may be of any suitable material adapted for the purpose; but I prefer wood, as shown in Fig. 2, 60 and preferably cover the same with rawhide D, as shown in Fig. 3, which rawhide may be held thereto in any suitable manner. These ribs are curved to conform to the curvature of the portion of the limb which they are at-
65 tached to.

E is a rawhide foot, which at the upper end is fitted within the lower end of the leg portion B and is provided with a filling-block F, of wood, provided with recesses f upon each
70 side, in which the lower extremities of the ribs C are seated, said parts—that is, the foot and leg portion and ribs—being pivotally connected together by means of the pivot-bolt G passing through the central portion of the
75 filling-block F, through the ribs, and through the opposite extensions E' of the leg portions, as seen in Figs. 1 and 2. The lower ends of the ribs of the leg portion are rounded from their rear sides forward, as shown in Fig. 1, 80 and the recesses f upon the opposite sides of the filling-block are rounded, as shown at d , and at their forward portions are somewhat undercut, as shown at e in Fig. 1.

H is a spring, affixed in any suitable man-
85 ner to the upper face of the block F, formed with a convolute or coil h and having its free end extended upward, as shown in Figs. 1 and 2, and arranged behind a horizontal pin I, held in the rib C, as shown best in Fig. 2. 90 The tendency of this spring is to normally hold the parts in the position in which they are shown in Fig. 1, and when the weight is placed upon the foot the heel portion is depressed and the rounded ends of the ribs ride
95 on the rounded portions of the recess of the block. When the foot is raised, the spring throws the toe downward into the position shown in Fig. 1.

In order to attach any support to the limb, 100

so that the weight thereof shall fall upon the shoulders, I provide a harness, such as is shown in Fig. 4, which consists of suspenders J, having widened shoulder-straps J' and adjacent limb-supporting straps J², which are adapted to engage suitable means, as the strap and buckle K on the upper end of the thigh portion of the limb, as shown in Fig. 1, or the same harness may be used for supporting an arm, such as is shown in my application of even date herewith. The supporting-strap J² may be integral with its member of the suspender or separate therefrom, as desired, or secured thereto in any suitable manner.

In Fig. 5 I have shown the preferred form of joint between the portions A and B. The one portion is formed with a recess *k*, with shoulders *l* and *m*, and the other portion is provided with a reduced end pivoted within the recess on the pivot *n* and formed with the shoulders *o*. The two portions are halved together at the joint, and are designed to be covered with rawhide to conceal the joint. The two portions can move from a position at right angles to each other to one in line with each other, the shoulders limiting the movement in the two directions.

What I claim as new is—

1. An artificial limb provided with skeleton ribs extending longitudinally and at each side of the limb and having joints at the knee and ankle and rigidly secured to the thigh and leg portions of the limb, the lower ends of the ribs of the leg portion being rounded from their rear sides forward and working in undercut recesses in the foot portion, substantially as described.

2. An artificial limb having oppositely-arranged wooden ribs covered with rawhide and

secured to the limb on each side thereof, substantially as described.

3. A rawhide foot having a filling of wood, provided with recesses at each side, in combination with stiffening-ribs secured to a leg portion, and a spring extending from the foot between the ribs and into the leg portion, substantially as described.

4. A harness for an artificial limb, consisting of suspenders having integral widened shoulder-straps, and adjacent limb-supporting straps at each end of said widened shoulder-straps, and branched, substantially as described.

5. The combination, with the leg and foot portion and ribs, of a spring carried by the foot portion, and a pin on the ribs, against which said spring bears, substantially as specified.

6. The combination, with the leg portion, the foot portion, and the filling-block in said portion, of the ribs attached to the leg portion and pivotally connected with said block, the transverse pin on the ribs, and the spring attached to the block and bearing against said pin, substantially as specified.

7. In an artificial limb, two pivoted parts pivotally connected together, the one formed with a recess with shoulders and the other with a portion extending through said recess and formed with shoulders beyond its pivot, substantially as described.

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

TERENCE SPARHAM.

Witnesses:

L. C. HILLS,

H. SUTHERLAND.