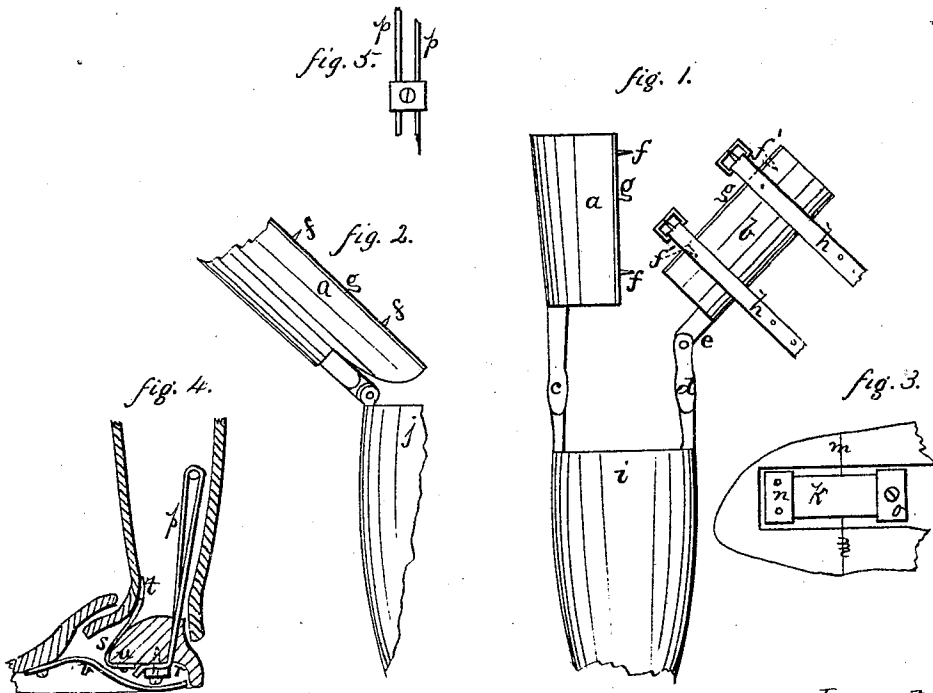


L. F. Pingree,

Artificial Leg.

No. 104,994.

Patented July 5, 1870.



Witness

Henry C. Houston
W. Franklin Seavey

Inventor

L. F. Pingree
By M. H. Clifford atty.

United States Patent Office.

LUTHER F. PINGREE, OF PORTLAND, MAINE.

Letters Patent No. 104,994, dated July 5, 1870.

IMPROVEMENT IN ARTIFICIAL LEGS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, LUTHER F. PINGREE, of Portland, in the county of Cumberland and State of Maine, have invented a new and useful Improved Artificial Leg; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others to make and use my invention, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a front view, illustrating a portion of my improved leg.

Figure 2 is also a front view of a portion thereof, with a slight modification.

Figure 3 is a view of the bottom of the toe of the foot, showing what I term the "toe-muscle."

Figure 4 is a side sectional elevation of a portion of the foot and ankle.

Figure 5 shows the method of securing the heel-cord.

Similar letters show like parts.

My invention consists—

First, in certain improvements in the case for the thigh, or those portions of the leg above the knee.

Second, of a case to receive the leg, when the amputation is in the knee.

Third, of an improved ankle or instep-band.

Fourth, of an improved toe-muscle.

Fifth, of an improved heel-cord.

In fig. 1 is shown my improved case or envelope for the parts of the leg above the knee. This case is divided vertically in the center.

The two parts *a b* of this portion of the leg-case are attached to the lower half by means of the points *c d*, which admit of the flexing of the knee.

The portion *b* has also the lateral joint *e*, which admits of one-half being thrown off laterally in a vertical plane, as illustrated in fig. 1.

The two parts *a b*, when united, have the points *f* and holes *f'*, to keep them in position.

The edges of contact have the metal strips *g*.

Around the whole pass the straps *h*, with buckles.

In this form (fig. 1) it will be seen that the knee is in the open space between the upper and lower halves of the leg, that portion of the leg below the knee entering the lower socket *i*. This form is intended, of course, for amputations below the knee.

The upper socket *a b* very much relieves the end of the stump below the knee from pain and fretting, where it rests in the bottom of the hollow of the socket. This form also applies to amputations above the knee.

Fig. 2 is where the amputation is in the knee, in which there is an extension, *j*, to receive that portion of the knee remaining, and a space made therein, corresponding to the formation to receive the knee, the lateral and vertical joints remaining the same.

Fig. 3 is a bottom view of a portion of the foot, showing the elastic band or muscle *k*, to unite the toe part to the other portion of the foot, the point of division being indicated by the line *m*. This is to permit of the flexure of the foot, or the curling up of the toe in stepping.

I claim the method of attaching the same, to wit: By means of the two metal clamps or boxes *n o*, into which the ends of the band *k* are inserted, and then, by means of the bolts and screws, as illustrated, both band and clamps are secured to the bottom of the foot. The same method is employed to secure the heel-cord *p* to the part *r* of the foot.

s is an instep-muscle or elastic band, secured in the same manner as the toe-strap, and employed to elevate the front part of the foot, when the weight is taken off from the foot, and it is about to be thrown forward in stepping.

It is secured on the inside of the ankle at *t*, and to the part *r* at *u*.

It will be observed that the under part of the foot is hollowed out, and the metal strip *v* inserted therein, to protect the operating-parts from injury.

The toe of the foot is attached to the body of the foot by a hinge, inserted between the edges of contact of the toe and the foot. The toe-band or muscle before described allows the foot to bend when the weight of the body is thrown toward the toe, and when the foot is raised to be thrown forward, imparts elasticity as it is lifted.

The instep-band or muscle, when the weight of the body is thrown upon the heel, prevents the toe of the foot from striking the ground too violently, and raises the toe of the foot when the weight is removed. These muscles or bands can be made tight or loose by moving one end and inserting the screw in another hole in the solid substance of which the foot is composed.

The metallic binding on the edges of the bisected socket answers the double purpose of giving stability to the connection of the two parts by means of dowels, and also to secure the edges of the raw-hide covering, which is glued to the external surface of the socket.

The socket, composed of the two sections, and conforming, as it does, to the shape of the limb, does not have the effect of interrupting the circulation of the blood in the limb, as is the case when it is laced and swathed, as is common.

The vertical joints of the knee, when the amputation is below the knee, are flexed by the action of the natural knee, the stump being fitted to the lower part of the leg.

These joints are fitted with a stop, which prevents leverage on the stump below the knee, and also prevents their moving backward further than is necessary to straighten the leg.

The manner of fastening the heel-cord is by drawing the two ends through the heel, each end being in a separate hole, then turning the ends over in the recess in the bottom of the heel at right angles with the vertical part of the leg, and then placing the bar or binder on the two ends thus turned over, and securing it firmly to the solid part of the foot, the whole lying in the recess or shoulder in the under part of the foot.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The bisected socket *a b* and lateral joints *e*, as described.

2. The bisected socket *a b*, having the metallic binding *g* and dowels *f*, as described.

3. The bisected socket *a b*, having the lateral and vertical joints *e c d*, as described.

4. Extending one-half of the bisected socket below the joint, as herein described, for the purpose specified.

5. The combination of the metal strips at the toe and heel of the foot with the elastic straps or muscles, secured as described.

L. F. PINGREE.

Witnesses:

WM. H. CLIFFORD,
FRANKLIN GEAREY