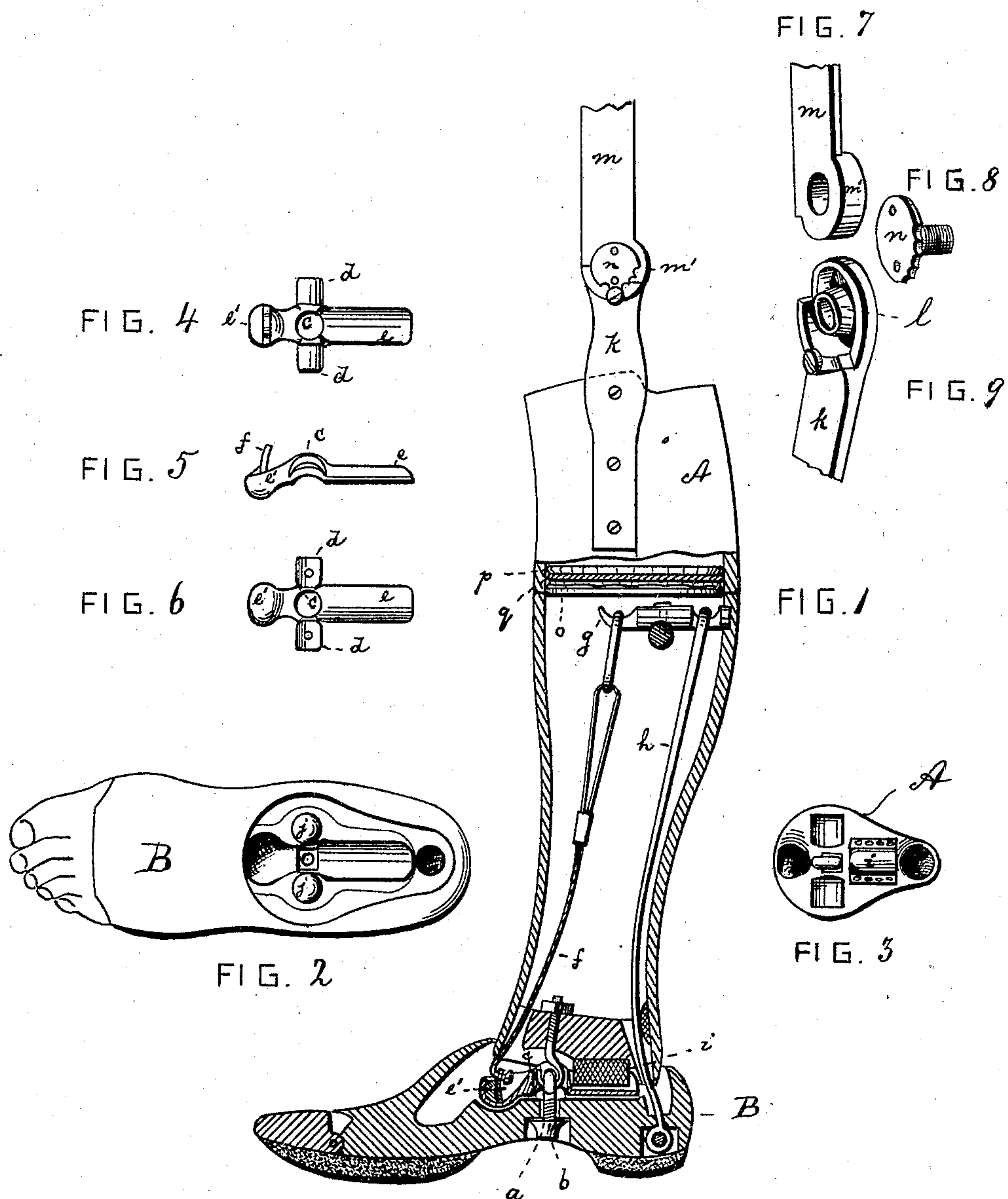


(No Model.)

C. A. FREES.
ARTIFICIAL LEG.

No. 368,580.

Patented Aug. 23, 1887.



WITNESSES

Wm. A. Howe
Alfred Jonghman

INVENTOR

C. A. Frees
by his attorneys
Roeder & Briesen

UNITED STATES PATENT OFFICE.

CHANCY A. FREES, OF NEW YORK, N. Y.

ARTIFICIAL LEG.

SPECIFICATION forming part of Letters Patent No. 368,580, dated August 23, 1887.

Application filed April 2, 1887. Serial No. 233,537. (No model.)

To all whom it may concern:

Be it known that I, CHANCY ADELMER FREES, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new and Improved Artificial Leg, of which the following is a specification.

This invention relates to an artificial leg, and more particularly to the ankle and knee joints thereof. It also relates to the diaphragm that supports the stump.

The invention consists in the various features of improvement hereinafter more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal central section through an artificial leg provided with my improvement. Fig. 2 is a top view of the foot. Fig. 3 is a bottom view of the leg. Figs. 4, 5, and 6 are respectively top, edge, and bottom views of the plate *c*. Figs. 7, 8, and 9 are detail views of the several parts of the knee-joint.

The letter *A* represents the artificial leg made of the usual form and entering a socket in the foot *B*.

a is a jointed pin or a cord secured to the leg and passing through a perforation of the foot, to which it is held by a nut, *b*, or otherwise. This pin or cord serves to connect the parts. The joint proper, upon which the leg may rock backward and forward and also laterally, consists of a cross-shaped plate, *c*, which is perforated centrally to permit the passage of pin *a*. By passing the pin directly through a perforation in such plate the construction of the parts is greatly simplified and their working is improved. The two shorter or transverse arms *d* of the plate *c* are bulged on top, resting within sockets of the leg, and constituting a fulcrum upon which the leg may rock backward and forward. The two longitudinal arms *e e'* are bulged at their bottom, resting within sockets of the foot, and constituting a fulcrum upon which the leg or foot may work laterally. The forward arm, *e'*, is preferably more or less ball-shaped, as shown, and may be connected by an elastic string, *f*, to a hook, *g*, to which there is also connected the heel-tendon *h*.

In order to properly limit the movement of the leg upon and the foot beneath the plate *c*, I employ bulged cushions *i j*, attached, re-

spectively, to the leg and foot and fitting into the concavities of the arms *e d*.

k is the side rod projecting from the upper end of the leg, and provided with a conical head, *l*, which is made with a screw-threaded central perforation. This head is embraced by a tapering ring, *m'*, attached to the thigh-bar *m*. A headed screw, *n*, entering head *l*, will secure the parts to each other, and by adjusting the screw the joint may be tightened or loosened. The advantage of this construction, and particularly of the perforated conical head, is that the screw has a large surface with which to engage, and thus the joint is not apt to wear out.

o is a ring fitted into the upper part of the leg and made of concave form in cross-section. This ring is entirely inclosed within the leg, as shown. Upon this ring and around its circumference there is placed the buckskin diaphragm *p*, which bears the end of the stump. Strings *q*, surrounding the ring *o* and the edge of the diaphragm, hold the latter in place. These strings are placed in the annular space between leg and ring. It will be seen that by making the ring of concave form I obtain room for the string. The ring may be secured to the leg by screws or otherwise, and it may be attached higher or lower to conform to the length of the stump.

I am aware that it is not new to arrange a plate between the leg and foot portion, the said plate having lateral and longitudinal bearing-arms; but I am not aware that any one has heretofore provided a plate or casting with lateral and longitudinal branches having a central vertical aperture for the passage of the connecting cord or bolt, and I attach importance to the employment of a casting or plate of this character, and to the fact that the said branches have bulged bearing-surfaces.

It will also be observed from the construction shown that the lateral branches are bulged or convex on their upper sides and concave on their under sides to receive the cushions of the foot-section, while the longitudinal branches are bulged or convex on their under sides and concave on their upper sides for a similar purpose.

What I claim is—

1. The combination, with the foot and leg sections, of a cruciform plate or casting having

a vertical aperture for the passage of the connecting-cord, substantially as specified.

2. The combination, with the foot and leg sections, of a cruciform plate or casting having
5 a central vertical aperture for the passage of the connecting-cord, the lateral branches of the said casting having their upper sides bulged and their under sides recessed, and the longitudinal branches having their under sides
10 bulged and their upper sides recessed to bear

upon the inserted cushions, substantially as specified.

3. The combination of leg A with the concave ring o, placed within the leg, diaphragm p, and string q, placed in the annular space between ring and leg, substantially as specified. 15

C. A. FREES.

Witnesses:

F. V. BRIESEN,
HENRY E. ROEDER.