B. W. Jerrett,

Artificial Leg.

No. 29,494. Patented Aug. 7, 1860.

Fig. 2.

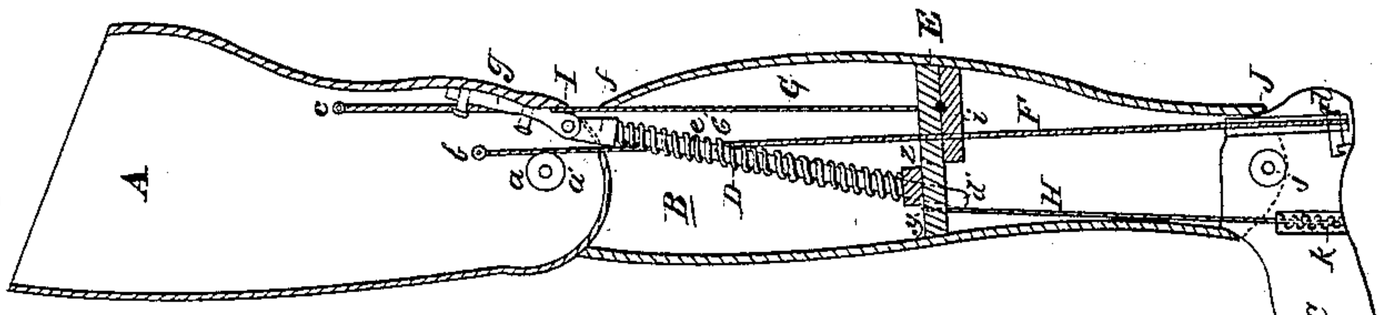


Fig. 1.

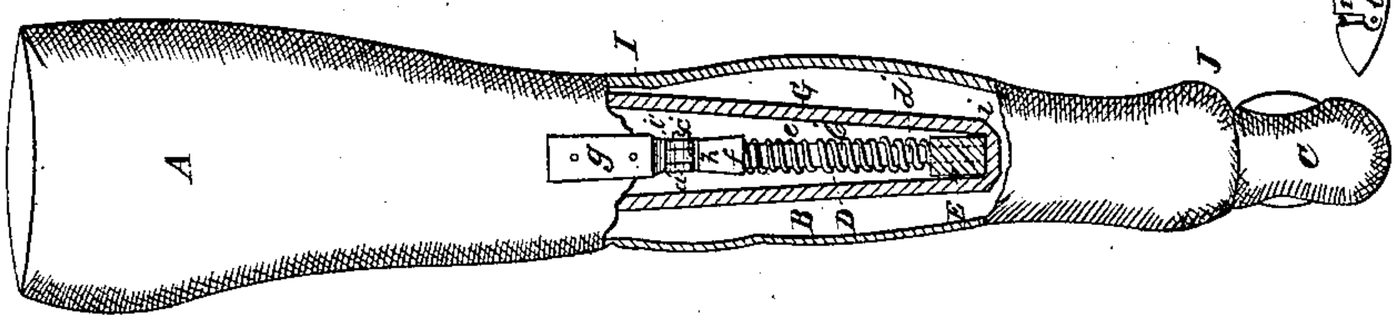


Fig. 4.

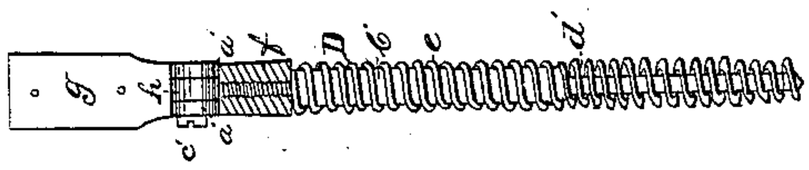


Fig. 7.

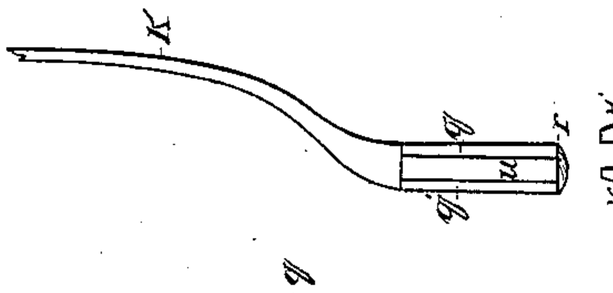


Fig. 8.

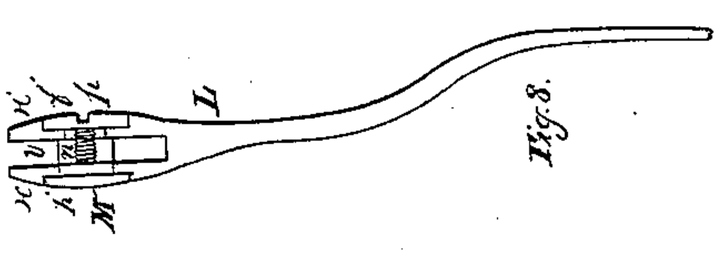


Fig. 5.

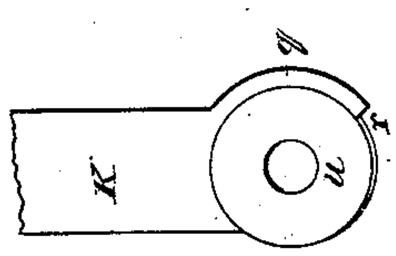


Fig. 6.

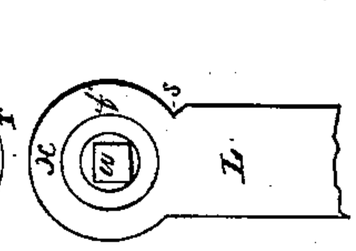
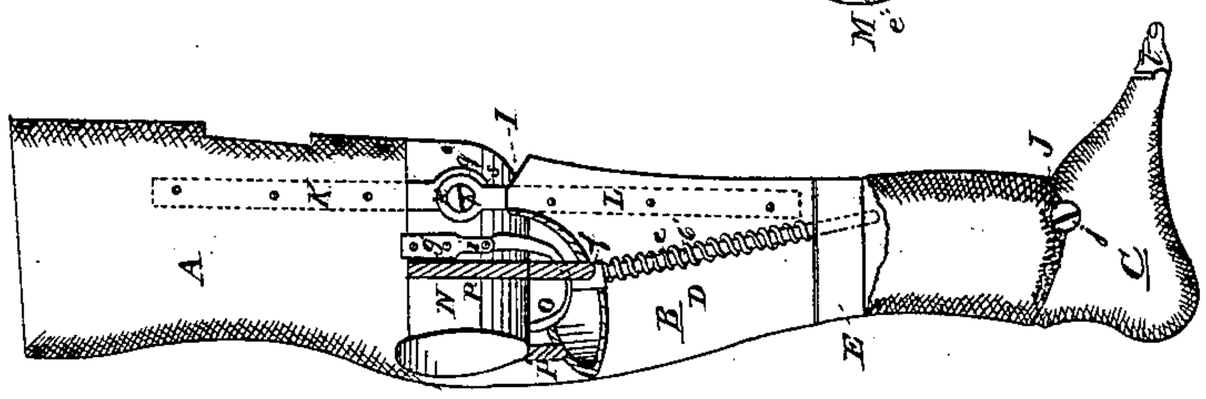


Fig. 9.

Fig. 3.



Witnesses.
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O. A. J. Vaughan

Inventor
Benjamin W. Jerrett

UNITED STATES PATENT OFFICE.

BENJAMIN W. JEWETT, OF GILFORD, NEW HAMPSHIRE.

ARTIFICIAL LEG.

Specification of Letters Patent No. 29,494, dated August 7, 1860.

To all whom it may concern:

Be it known that I, BENJAMIN W. JEWETT, of Gilford, in the county of Belknap and State of New Hampshire, have invented a certain new and useful Improvement in the Improved Artificial Leg, invented by me and secured to me by Letters Patent of the United States bearing date the 6th day of January, A. D. 1857, to which Letters Patent I refer for a particular description of my invention therein claimed, my said improvement consisting, first, in an improved knee-spring, to be used in all cases where the amputation is above and in certain cases where the amputation is below the knee, and, second, in an improved knee-joint to be used only in cases of amputation below the knee; and I do declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a back view of the entire leg. Fig. 2, is a side view of the same. Fig. 3, is a view of a leg as used when the amputation is below the knee. Fig. 4, is a view of my improved knee spring. Fig. 5, is a view of the upper or male part of my improved knee joint. Fig. 6, is a view of the lower or female portion of the same. Fig. 7, is an edge view of the upper or male part of the same joint. Fig. 8, is an edge view of the lower or female part of the same. Fig. 9, is a view of the hinge or pivot bolt uniting and confining the male and female parts of the same joint.

The same letters represent like parts in the respective figures.

A, is the thigh part which I make of light and durable wood, except as shown in Fig. 3. In that figure, or in cases in which the amputation is below the knee, the thigh portion of the limb should be made of a section of light and durable wood, leaving an open space in front for the admission of the limb, all of which is covered with buckskin or other suitable leather lacing up in front, as seen in Fig. 3, sufficiently close upon the thigh of the wearer to keep it firmly in place.

B, is the leg part of the limb, and C, is the foot.

D, is the knee spring, which is composed of a spiral spring *e*, inclosing a wooden guide or support *b′*, having at its upper extremity a shoulder *f*, against which the upper end of the spiral spring *e*, rests.

The guide *b′*, is connected by the male and female joint *a*, *h*, *a′*, to the strap *g*, by which the knee spring D, is confined to the thigh A, behind the knee I. The male part *h*, and the female part *a*, *a′*, of the joint connecting the upper and lower portions of the knee spring D, are united by the bolt *c′*, on which they freely play. The male part *h*, of the joint terminates with a screw which penetrates the shoulder *f*, of the guide *b′*, as seen in Fig. 4. The lower extremity of the guide *b′*, is made in the form of a long tenon, as seen at *d′*, and penetrates the slot *z*, in the cross-bar E, in which it freely moves, as seen in Figs. 1, 2, and 3.

In my artificial leg, designed for the use of those whose limbs have been amputated below the knee, shown in Fig. 3, the joint of the knee spring D, is constructed with a loop O, made of steel, which passes under and partly around the knee socket N, to which it is connected by the hinges or joints *i′*, *i′*, and the straps *g′*, *g′*, on either side, the strap and hinge on one side only being shown.

F, is the tendon achilles, the upper extremity *b*, of which is secured by blocks fitted into a socket in the thigh piece A, and the lower extremity is secured by a pin in the heel, as seen at *d*.

G, is the knee cord attached at its upper end *c*, to the thigh piece A, in the same manner as the tendon achilles, the lower extremity looping around the cross-bar E, at *i*, as more fully represented in Fig. 1.

H, is a cord attached to the cross-bar E, as seen at *y*, Fig. 2, having a spiral spring *k*, at its lower extremity, where it is fastened to the foot, the use of which is to restore the foot to its proper position after it has been depressed by a step in walking.

J, is the ankle joint, which turns upon the hinge lever *j*.

l, is a hinge connecting the toes with the instep portion of the foot.

m, is a spiral spring, one end of which is inserted in the instep part of the foot, the other end of which pressing upon the toes restores them to their proper position after they have been flexed by the act of walking.

P, P′, are cords which unite the thigh-piece A, with the leg piece B, in the artificial limb, designed for amputations in certain cases below the knee.

K, is a strap attached to the thigh piece A, at the lower extremity of which is the male joint *u*, having flanges *q*, *q′*, on either side of

it. The male joint *u*, penetrates the slot *v*, of the female joint between the lips *x*, *x'*, in which it is confined by the large bolt M.

L, is the strap by which the female joint is confined to the leg-piece B.

r, is a shoulder on the male joint, which, when the limb is fully extended, rests in the socket *s*, of the female joints.

The knee-joint, consisting of the parts above described, should be made of fine tempered steel, and the parts accurately fitted to each other.

The hinge or pivot bolt M, is constructed of fine tempered steel in the form as seen in Fig. 9, of which *e'*, is the head or crown, resting in socket *h'*, in the female joint which is accurately fitted for its reception.

n, is the pivot, or part of the bolt on which the male joint *u*, turns.

o, is a square projection upon the end of the bolt *n*, which is exactly fitted to the slot *w*, in the female joint, as seen in Fig. 6. By this device the leg-piece B, is prevented from turning on the bolt *n*, as is the case with the thigh piece A.

p, is a screw which penetrates the bolt *n*, and confines it firmly in place, itself resting in the socket *f'*, in the female joint, as seen in Fig. 8.

Having described my said improvement in the artificial leg, I now proceed to set forth their operation and uses, and, first, with regard to my improved knee-spring. In the act of walking the knee spring, by the pressure of its upper extremity upon the back part of the thigh piece A, behind the knee joint or center of motion, the lower extremity pressing upon the cross-bar E, in the leg piece B, before the center of motion, exerts a constant tendency to extend the leg and foot, and when the leg is flexed, as in the act of sitting, both extremities of the spring being brought in line with, or a little behind, the center of motion, the limb remains flexed without any tendency to extend; second, with respect to my improved knee joint in the use of the flanges *q*, *q'*, the shoulder *r*, and the socket or rest *s*. Its design is, to prevent the knee from going back too far when extended, and thus straining, loosening, and injuring the joint. The old joint in use, is made with a section cut from the lower part of the male joint approximating to a straight line, the lower part of the socket of the female joint being made to correspond in form with the male joint. In walking, the upper part of this joint comes in contact with the lower or female part with a drawing stroke, the effect of which is, to wear the joint where the parts come in contact, and to permit the joint to bend back too far. My improved knee joint wholly obviates this defect. The flanges *q*, *q'*, of the male joint bearing upon the lips *x*, *x'*, of the female joint constantly supports it and gives it strength and durability, while the shoulder *r*, and the rest *s*, prevent the limb from bending back too far in the act of walking. In my joint the weight and wear come upon the flanges *q*, *q'*, of the male joint, and the lips *x*, *x'*, of the female joint, in connection with the bolt or pivot *n*, in this respect contributing greatly to its strength and durability.

Having above described the construction of my improved knee spring and knee joint, and their operation and uses, what I claim, and desire to secure by Letters Patent, is—

1. The construction and operation of the guide *b'*, connected by a suitable joint to the thigh piece A, the guide *b'*, being free to move through the slotted bar E, and being inclosed by the spring *e*, as above set forth.

2. The flanges *q*, *q'*, and the lips *x*, *x'*, in combination with the bolt M, constructed and operating as above set forth.

In witness whereof I have hereunto set my hand this fifteenth day of December, A. D. 1859.

BENJAMIN W. JEWETT.

Witnesses:

GEORGE W. STEVENS,

J. P. HUTCHINSON.