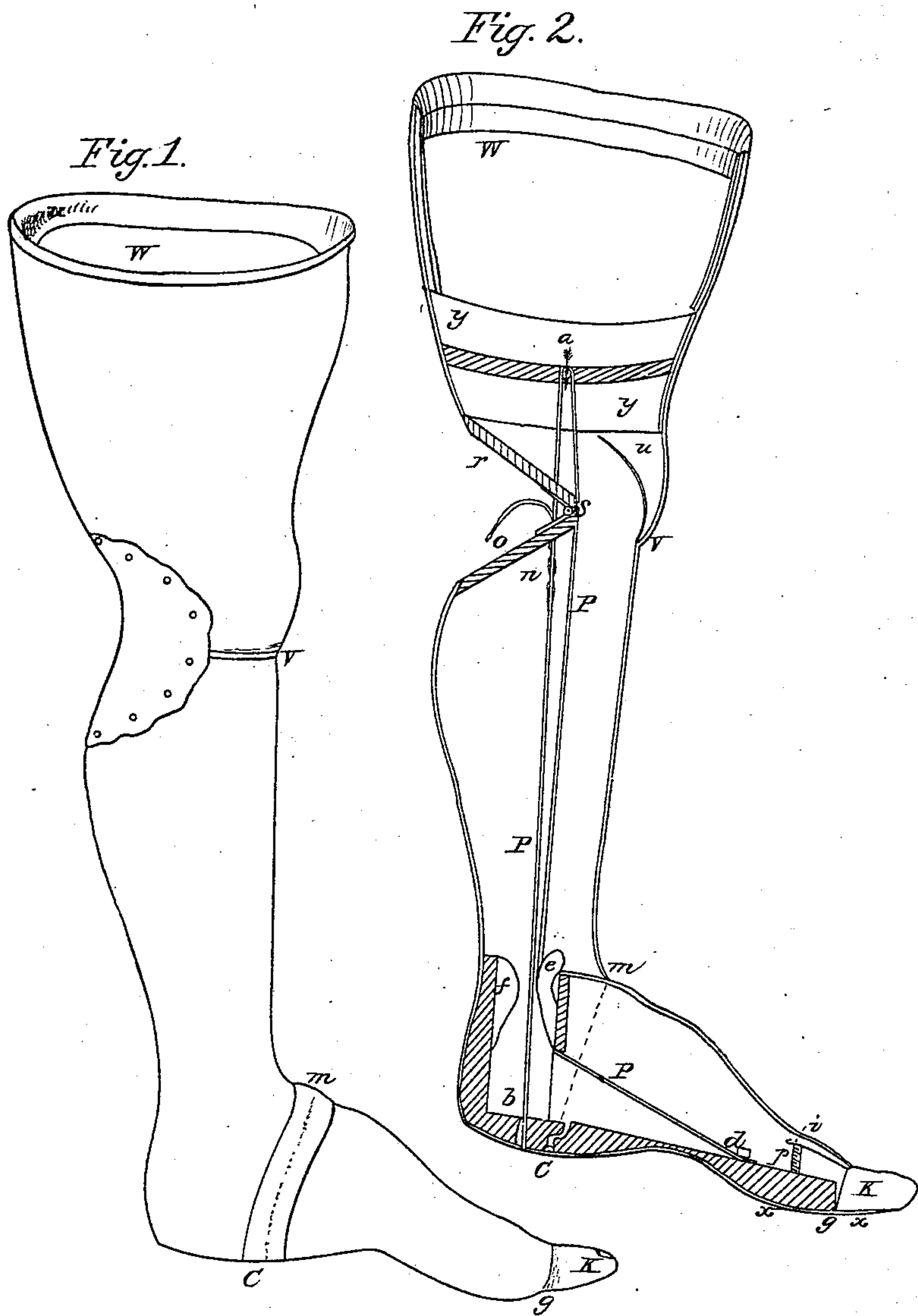


S. G. Gregory.

Artificial Leg.

N^o 93,876.

Patented Aug. 17, 1869.



Witnesses:
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STEPHEN G. GREGORY, OF ALBANY, NEW YORK.

Letters Patent No. 93,876, dated August 17, 1869.

IMPROVEMENT IN ARTIFICIAL LEGS.

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

To whom it may concern:

Be it known that I, STEPHEN G. GREGORY, of the city and county of Albany, and State of New York, have invented a new and useful Improvement in Artificial Limbs; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, the same letters, in the several figures, referring to the same part of said improvement.

My improvement has for its object the durability, and the perfectly natural action of the artificial limb, when constructed and applied according to my invention.

In the accompanying drawings—

Figure 1 is a representation of the entire artificial limb, as prepared according to my said improvement, and made ready for use, omitting the representation of the means by which it is attached to the person using the same.

In such figure—

u represents the upper finish, or binding, which terminates the upper portion of the limb.

w represents the leather lining of the internal cavity of the artificial limb where it joins to the person employing the same.

y is a lining, made of thin sheet-brass, or any other suitable metal, for the purpose of protecting the substance of the artificial limb from the corrosive or destructive action of the exhalations emitted from the body of living persons, which, hitherto, have proved very destructive to the material composing artificial limbs.

The knee-joint turns upon a hinge or pivot, *s*, (shown in Figure 2.)

The point *v*, taking *s* for its centre, turns through the arch *v v*, representing the knee-joint.

The line *m c*, fig. 1, is the line of the instep-joint, *c* being the pivot-point of the joint in fig. 2.

Taking the point *c* for a centre, the arch *m e*, fig. 2, represents the line through which the top of the instep turns.

The joint of the toe, *k*, turns upon its pivot or hinge, *g*. Or, in the place of a pivot or hinge, a spring, *x x*, extending from the ball of the toe-joint, under the toe, may be substituted.

When the toe is bent upward or back in walking, a stem, *i*, extending back from the toe, presses down upon the spiral spring *h*, and it is thereby brought back to its natural position, when the pressure is taken from it.

Figure 2 is a vertical section of the artificial limb, showing the internal mechanism by which the limb, and the several parts of the same, are operated.

The double line *P* represents a rubber or elastic strap, attached to the heel of the foot at *b*, and pass-

ing up over the pulley *a*, descends, by the points *s* and *e*, to the point *d*, past the internal centre of the sole of the foot.

This elastic strap is tightened by means of a buckle, *n*, to regulate the tension and elasticity of the strap, the design of which is mainly to operate upon the joints *m* and *s*, as hereafter described.

In fig. 2, *f* and *e* are rubber or elastic cushions, designed to be acted upon, and to receive the action of the said elastic strap, at and near the points *e* and *f*.

The operation of this limb is as follows:

When the wearer of the same stands erect, with the weight of the body resting upon this limb, it will appear as represented in the drawings.

In the act of resting upon this limb, and carrying the body forward over the same, the forward part of the foot, turning upon the joint at *c*, will carry the top of the instep back through the arch *m e*, pressing against the elastic strap at *e*; at the same time the toe *k*, being pressed up, the stem *i* presses down upon the spiral spring *h*. As soon as the body has been carried sufficiently forward to bring the weight of the body upon the other leg and foot, this limb is raised from the ground by means of the muscles of the hip, when the foot is brought into its natural position, through the action of the elastic strap at *e*, and the toe is brought to its natural position by the spring *h*.

In carrying the limb forward, the knee-joint is bent at *s*, first, by the raising of the entire limb from the ground, and by the weight of the lower artificial part of the same; but as the limb is put forward, to be placed again upon the ground, the forward movement of the foot, and the elasticity of the strap, acting over the joint *s*, bring the leg, at the knee, in its proper position for renewing the step.

Having thus fully described the nature of my said invention and improvement, I will proceed to set forth my claim.

1. I claim the knee-joint *s*, in combination with the instep-bearing *m e*, toe-joint *g*, toe *k*, strap *P*, and pulley *a*, constructed and arranged substantially as and for the purpose set forth.

2. I claim the elastic strap *P*, in combination with the joint *s* and instep-bearing *m e*, as and for the purpose herein described.

3. I claim the said elastic strap *P*, in combination with the joint *s*, cushions *e f*, and joint *m c*, as and for the purpose herein described.

4. I claim the elastic strap *P*, in combination with the pulley *a* and the holding-points *b d*, substantially as described, for united action.

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Witnesses:

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