G. M. Yerger,

Artificial Leg.

No. 7,204. Patented Mar. 19, 1850.

Fig 2.

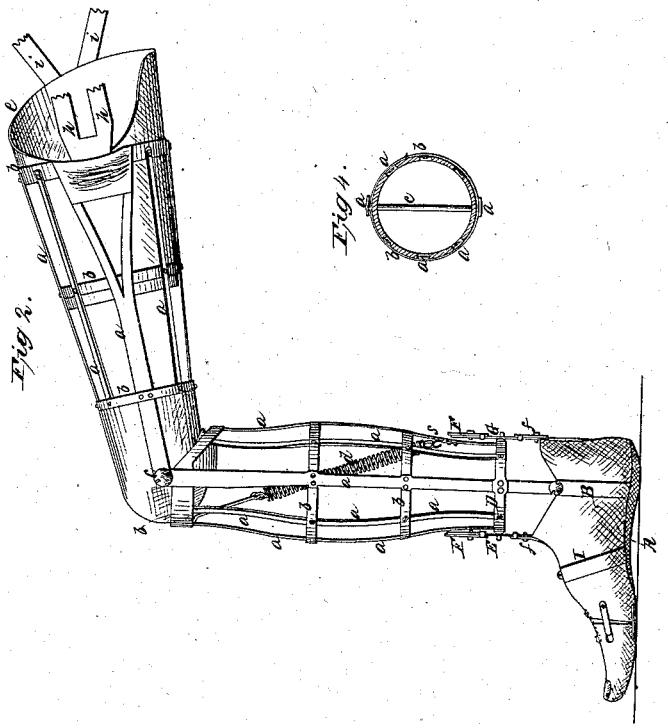


Fig 4.

Fig 3.

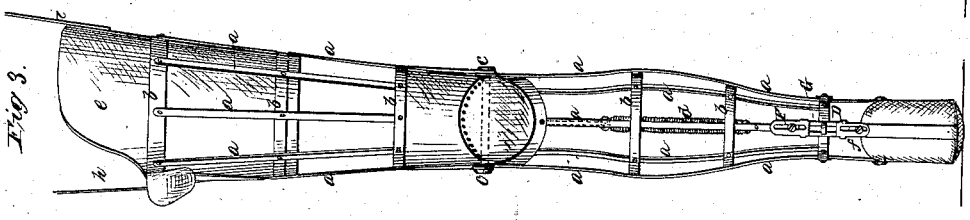
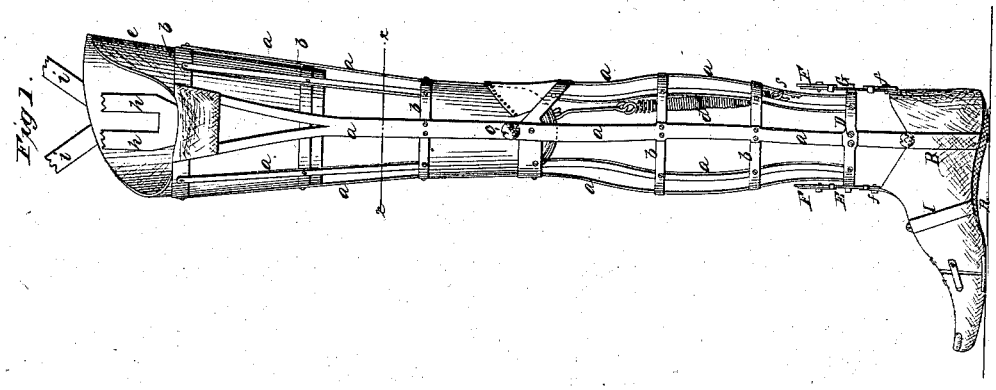


Fig 1.



UNITED STATES PATENT OFFICE.

GEO. W. YERGER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN ARTIFICIAL LEGS.

Specification forming part of Letters Patent No. **7,204**, dated March 19, 1850.

To all whom it may concern:

Be it known that I, GEORGE W. YERGER, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in artificial legs for persons who have suffered amputation, and others, called "Yerger's Metallic Skeleton Leg," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of a right skeleton leg in a standing posture. Fig. 2 is also a side elevation of the same leg flexed at the knee, the body being seated. Fig. 3 is a rear elevation in a standing posture. Fig. 4 is a horizontal section on the line *x x* of Fig. 1.

Similar letters in the several figures refer to corresponding parts.

The lower portion of this leg—that is to say, from the ankle to the sole of the foot—including the shank-plate A, curved braces I B, ring-plate D, spring-bars E G, adjustive stops E *f*, being described and claimed in my patent for "the ankle-supporter," granted to me on the 20th day of March, 1849, need not, therefore, be particularly described, nor the ball-and-socket joint of the knee, nor the ankle-joint. This skeleton leg is made of thin metallic ribs *a*, rings or hoops *b*, (except the knee and socket,) and so combined and united as not to weigh over four or five pounds when completed for an adult, and to be sufficiently strong to bear any required weight. The ribs *a* run lengthwise of the leg, and are fastened to the hoops *b*, which are of the shape of the required leg in its cross-section, and of sizes corresponding to the several portions of the leg for which they are designed. The knee-joint is formed by a horizontal bolt, *c*, passed through the ball and socket. A spiral spring, *d*, is attached to the ball of the knee and to a projection or slide, *s*, placed inside the leg, near the ankle, for the purpose of bringing the lower part of the limb forward when in the act of stepping.

In order to tighten the spring when it becomes weak, the slide *s* is made adjustive by a mortise and screw.

The adjustive spring-bars of the ankle may be placed inside the skeleton leg, (instead of the outside, as represented in the drawings,) by which arrangement the parts will be out of the way of the boot, which may then be drawn over the parts quite easily.

The socket *e*, or pocket to receive the stump of the thigh, is made of leather or other material, and is inserted into and fastened to the upper portion of the metallic skeleton leg, and is provided with suitable straps, *h i*, by which the leg is secured to the body of the wearer. The strap *h* is an attachment for buckles to receive the ends of the suspenders after passing over the shoulders, and the strap *i* is for passing around the body and fastening on the side thereof above the hips.

The use of metallic plates might convey the idea that the leg is heavy, but, on the contrary, it is so constructed (as the drawings show) of metallic ribs and encircling hoops, so put together that one piece sustains the adjacent piece, rendering it capable of bearing three times the average weight of the human body of an adult and allowing a free circulation of air around the stump, keeping it always cool and healthy, which is a matter of great importance to all who have suffered amputation. The weight of a leg of full length varies from two and a quarter to three and a half pounds, and in very rare cases will it exceed four or five pounds. The motions of the knee and ankle joints approach so near to those of the natural leg as to render it almost impossible to distinguish it from the natural limb when the pantaloons and boots are properly adjusted, and it can be adapted to almost any form of amputation with very little difficulty, even to a stump of three inches projection from the trunk.

The springs in my metallic skeleton leg are so conveniently arranged and applied as to allow the natural action of the foot, and the leg, instead of hanging back, as is often observed in wooden legs, comes promptly forward and assumes its proper position in obedience to the will of the wearer.

The durable nature of the material and the ingenious manner in which the several parts are arranged and combined render this metallic leg stronger, more lasting, and far more symmetrical and elastic than any other artificial leg ever before known or used, and very pleasant and comfortable to the wearer.

Having thus described the nature, charac-

ter, and action of my artificial leg, what I claim as my invention, and desire to have secured to me in this application, is—

The exclusive privilege of making artificial skeleton legs of thin metallic ribs or plates, and rings or hoops united together by rivets or other suitable fastenings substantially in the manner herein set forth, irrespective of any particular combination with other parts connected therewith.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

GEO. W. YERGER.

Witnesses:

LUND WASHINGTON,

WM. P. ELLIOT.