

No. 41,456.

PATENTED FEB. 2, 1864.

J. W. WESTON.  
ARTIFICIAL LIMB.

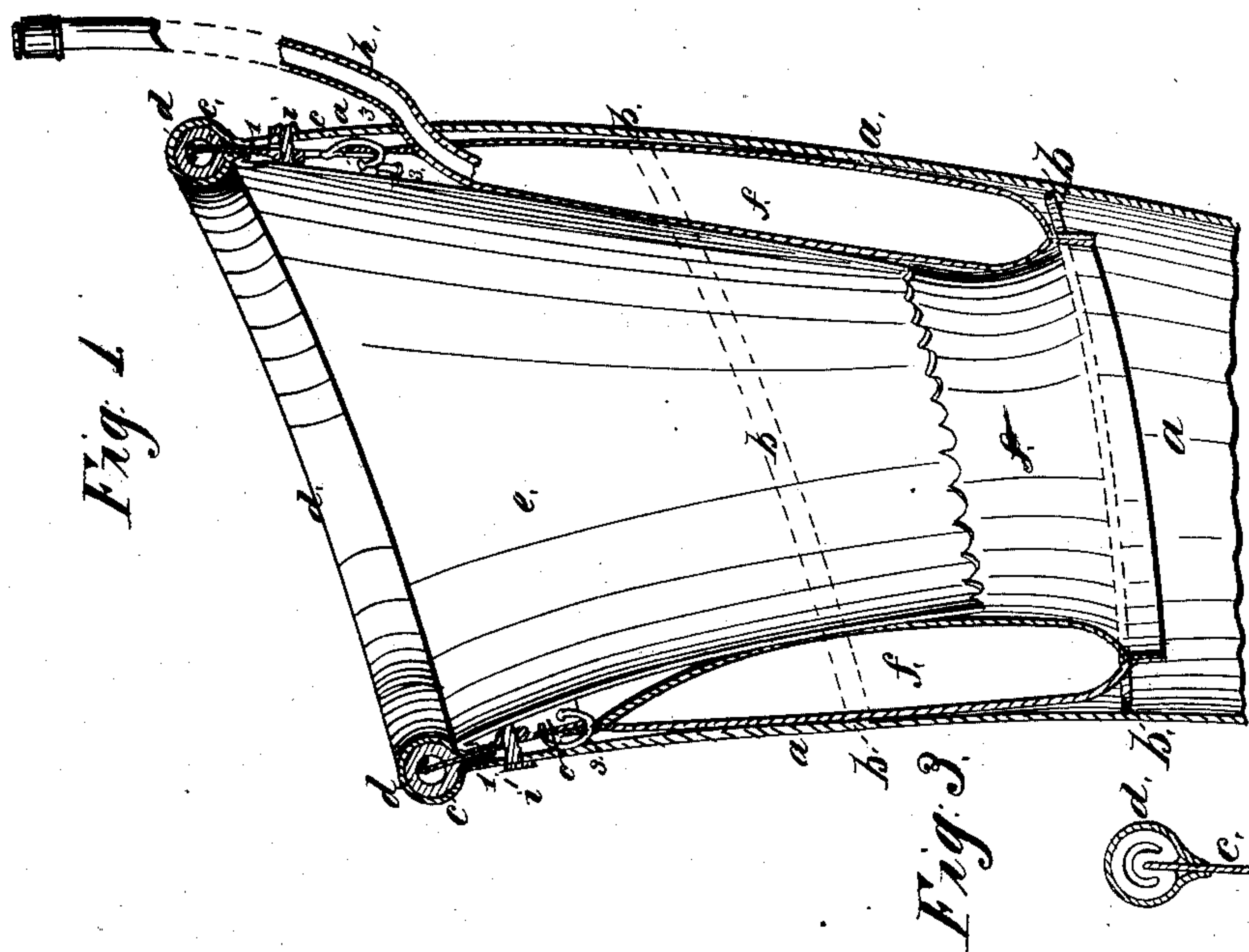
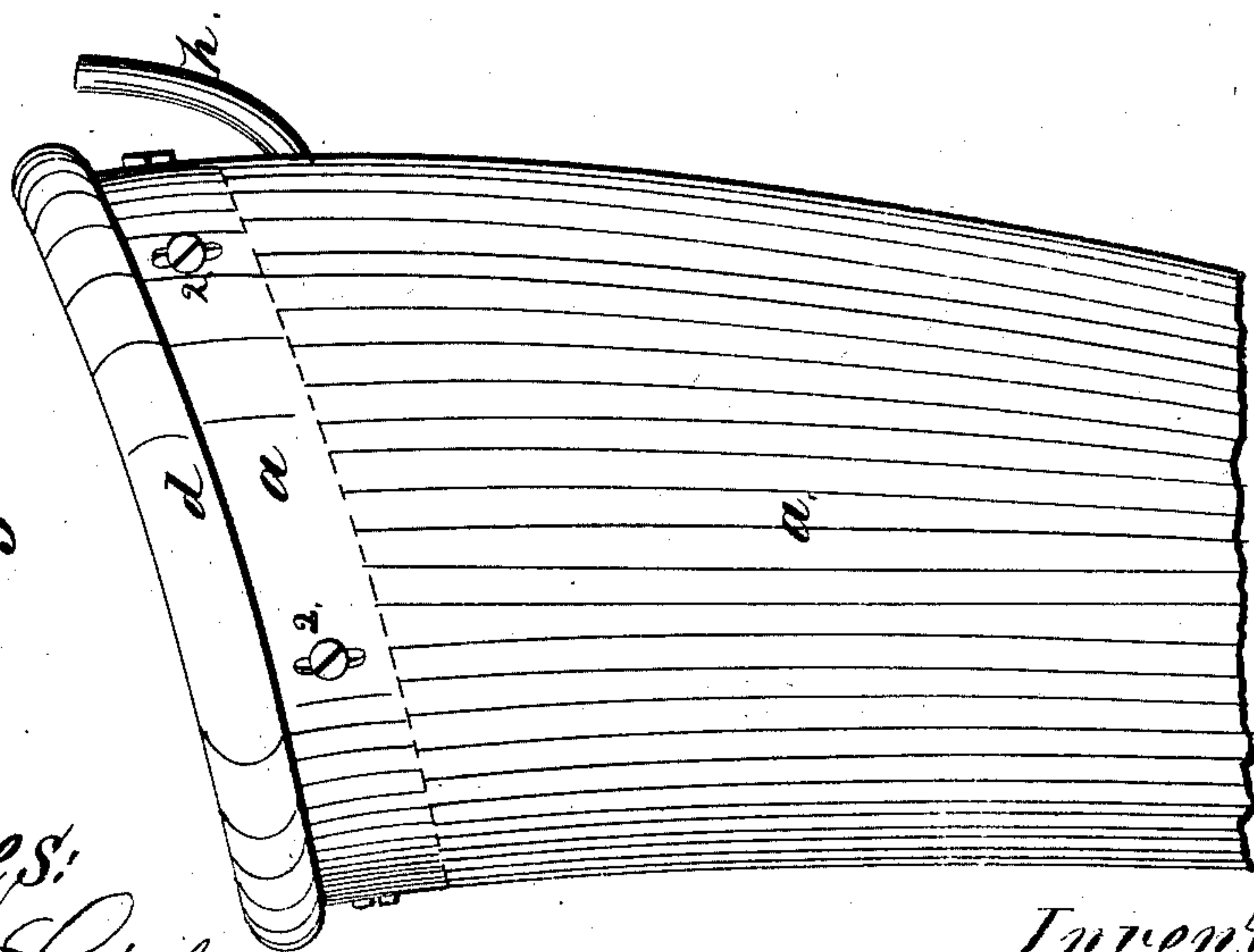


Fig. 2.



Witnesses:  
Charles H. Smith  
Jas Geo Harrod

Inventor:  
J. W. Weston



# UNITED STATES PATENT OFFICE.

JAMES W. WESTON, OF NEW YORK, N. Y.

## IMPROVEMENT IN ARTIFICIAL LIMBS.

Specification forming part of Letters Patent No. 41,456, dated February 2, 1864.

*To all whom it may concern:*

Be it known that I, JAMES W. WESTON, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Sockets for Artificial Limbs; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a vertical section of said socket, and Fig. 2 is an elevation of the same.

Similar marks of reference denote the same parts.

The object of my said invention is to furnish a means for fitting any size or shape of stump, and to accommodate the length of limb. Said invention consists in an air cushion surrounding the stump, and pressing uniformly upon the sides of the stump by the action of the air forced into said cushion, and by this means the artificial limb is kept from immediate contact with the stump, and hence the jar in the act of walking is relieved, the limb cannot change its position because of the sidewise compression, and does not require as many straps as heretofore employed to hold it in place.

I also make use of a thigh-conformer that can be adjusted to the shape of the groin, so as to cause the weight of the person to take an even and comfortable bearing upon the upper end of the socket of the artificial limb around the thigh-joint.

In the drawings, *a*, is a metallic socket of the size and shape adapted to the other parts of the artificial limb, which other parts, not forming any portion of the present invention, are not further described or shown.

The metal composing this socket is to be corrugated to increase the stiffness thereof, (the same as in Letters Patent granted January 6, 1863, to T. F. Englebrecht, R. Boeklen, and W. Staehlen.) I, however, stiffen the same and prevent the sheet metal splitting in the direction of the corrugations by introducing metallic rings at *b*, soldered or brazed to the inside of the socket.

At the upper end of the socket is a metallic ring, *c*, around the upper edge of which a cylindrical strip or band of india-rubber, *d*, is placed, said cylindrical or pipe-shaped strip

of rubber being cut in longitudinally or molded with a groove, so as to set over the edge of this ring *c*. This rubber strip is secured by a covering of leather or other substance, screwed or otherwise attached to the ring, and a lining, *e*, is attached at the same point and passes down inside the socket.

The rubber band *d* around the upper end of this ring *c* becomes an easy cushion for the body or thigh to rest upon, and the ring *c* is attached by screws to the socket *a*, as at *i* *i'*. The screw *i* may be altered and set into the other hole provided for it, as at 1, so that the length of the leg can be varied at this point to correspond with the length of the other leg, particularly with a view to attain the proper length between the knee and thigh joints. This ring *c*, furthermore, may be adjusted so as to raise or depress the front or back edges to conform the same to the shape of the thigh at the groin and to secure the said ring in place when adjusted the screws 2 are provided in vertical slots in the upper end of the socket *a*. (See Fig. 2.)

My air-cushion, surrounding the stump of the limb, is shown at *f*, and is attached by lacing at 3 to the ring *c*, or otherwise secured to the socket. This air-cushion is to be made of india-rubber cloth, so as to be air-tight, and a tube, *h*, led out at a hole in the socket *a* is provided with the usual screw-stopper at the end, by means of which the cushion is inflated.

The cushion being confined within the socket causes a compression upon the limb when the said inflation takes place, and the pressure is sufficient to cause the cushion to take an even bearing against the sides of the stump, in some cases effecting the attachment of the artificial limb without the use of straps; but straps may be used, if desired. This air-cushion may be made of an annular shape, or it may be a properly-shaped cushion rolled up, so that the stump passes into the same while contained in the socket.

The band of rubber *d*, forming a cushion at the upper end of the socket, may be made of a pipe confined to its place by a covering, and then inflated with air. The section Fig. 3 illustrates this device. The inflation may be effected by a separate tube and mouth-piece, or it may be by a connecting-tube to the cushion *f*.

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

1. An air-cushion between the stump and socket, substantially as and for the purposes specified.

2. The cylindrical band or pipe *d*, of india-rubber, applied at the end of the artificial limb to form a cushion for the weight to rest upon, as set forth.

3. The adjustable ring *c*, fitted substantially as specified, to form a thigh-conformer, as set forth.

Dated December 16, 1863.

J. W. WESTON.

Witnesses:

CHAS. H. SMITH,  
THOS. GEO. HAROLD.