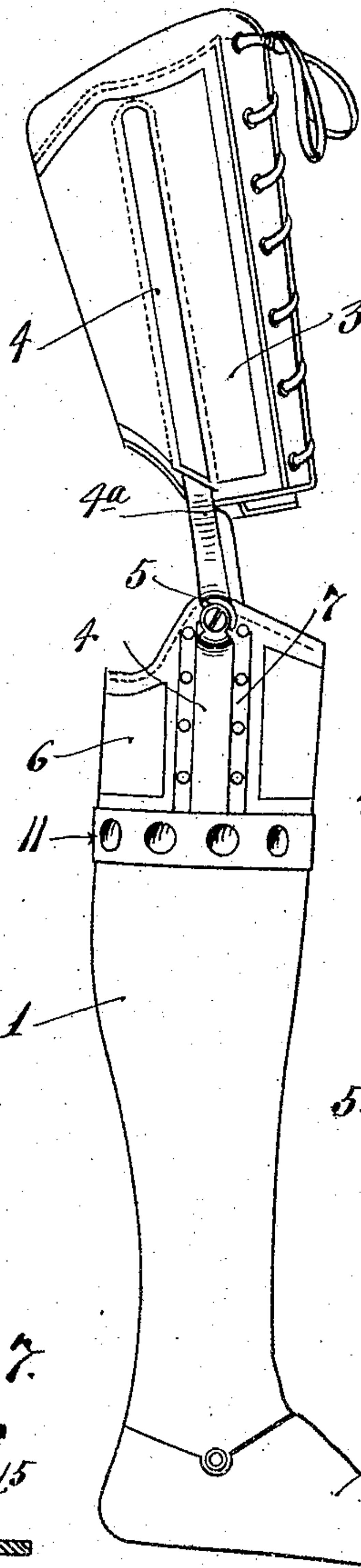


G. A. ERICKSON.  
ARTIFICIAL LEG.

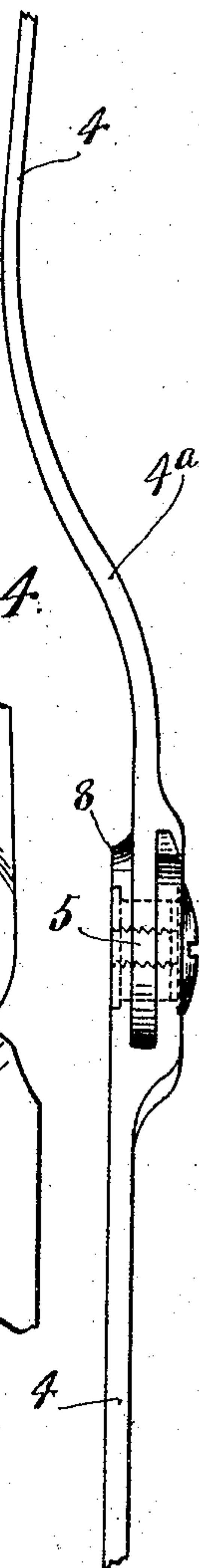
APPLICATION FILED APR. 21, 1904.

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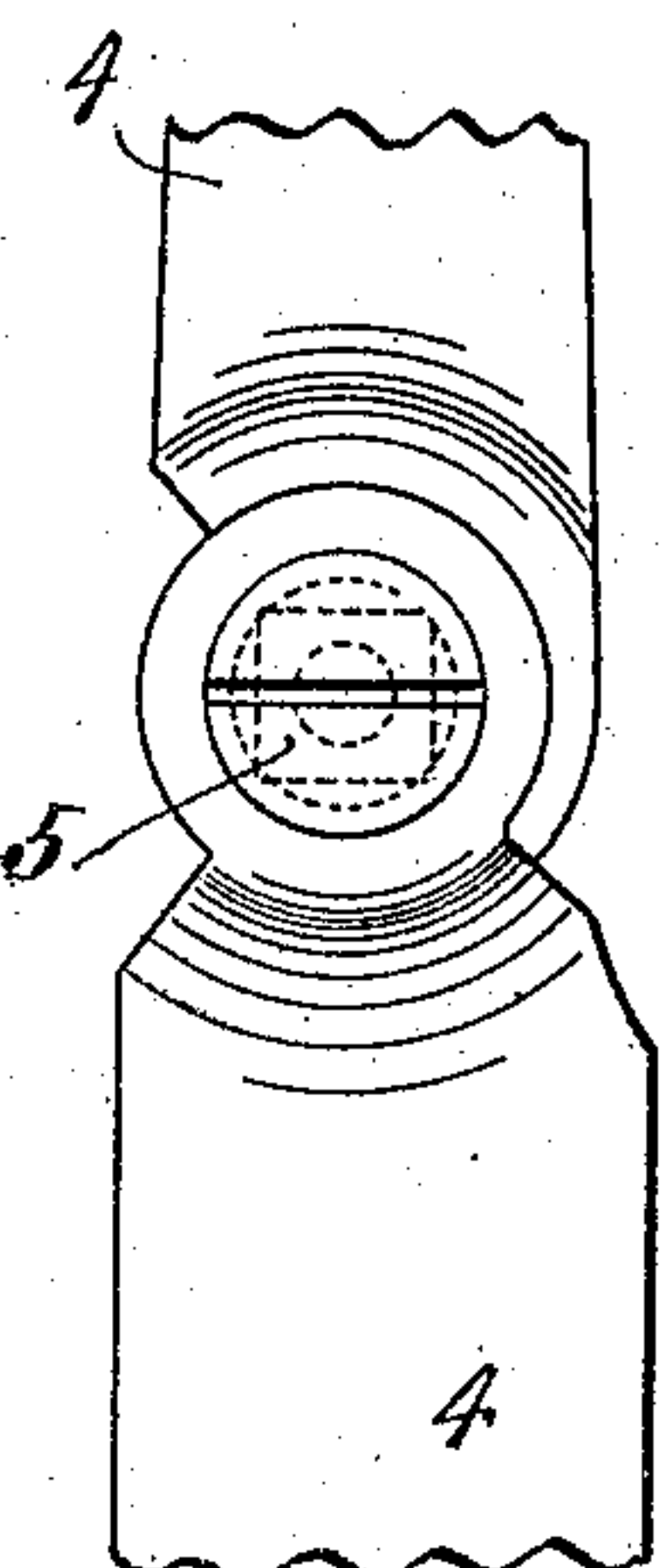
*Fig. 1.*



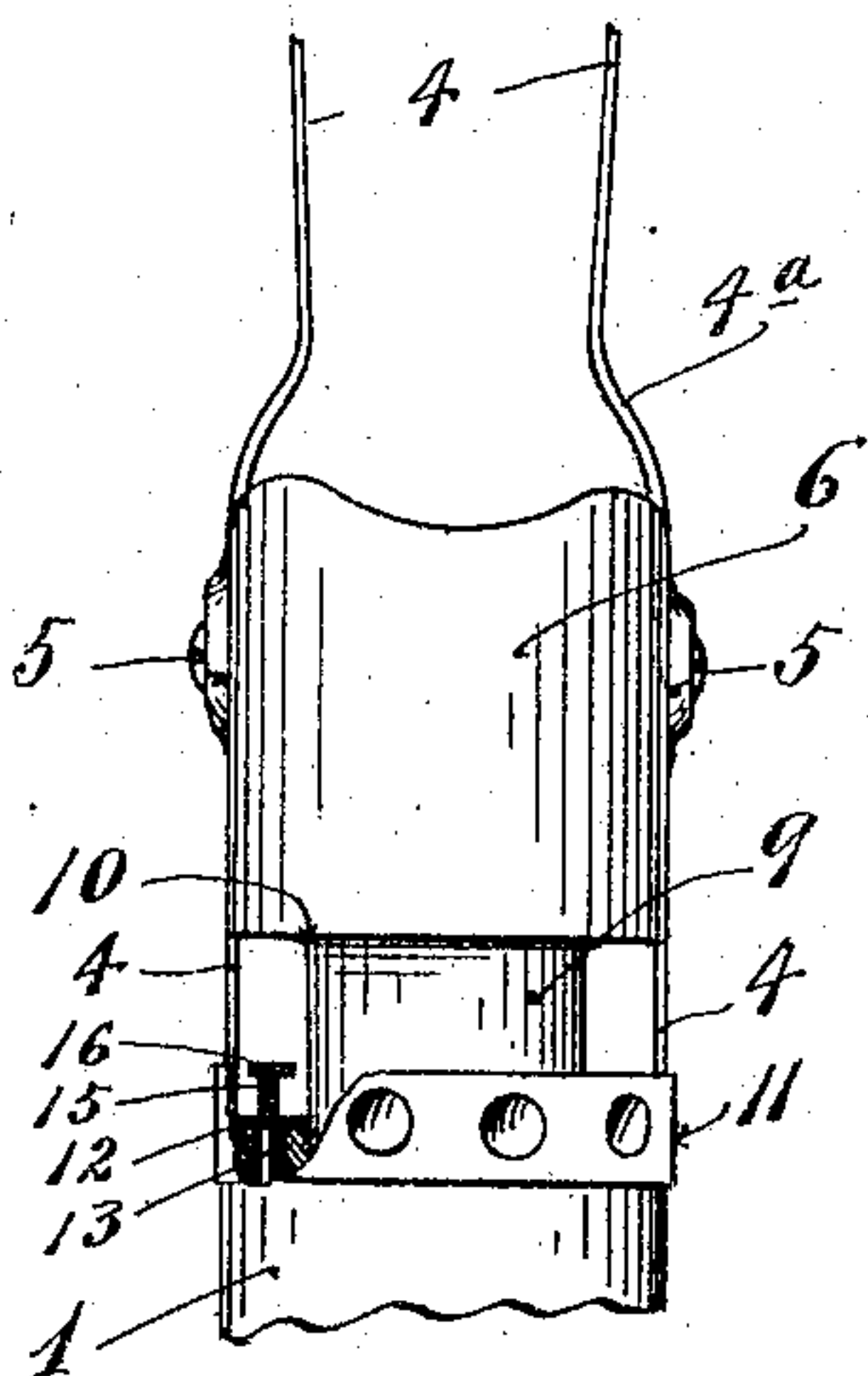
*Fig. 5.*



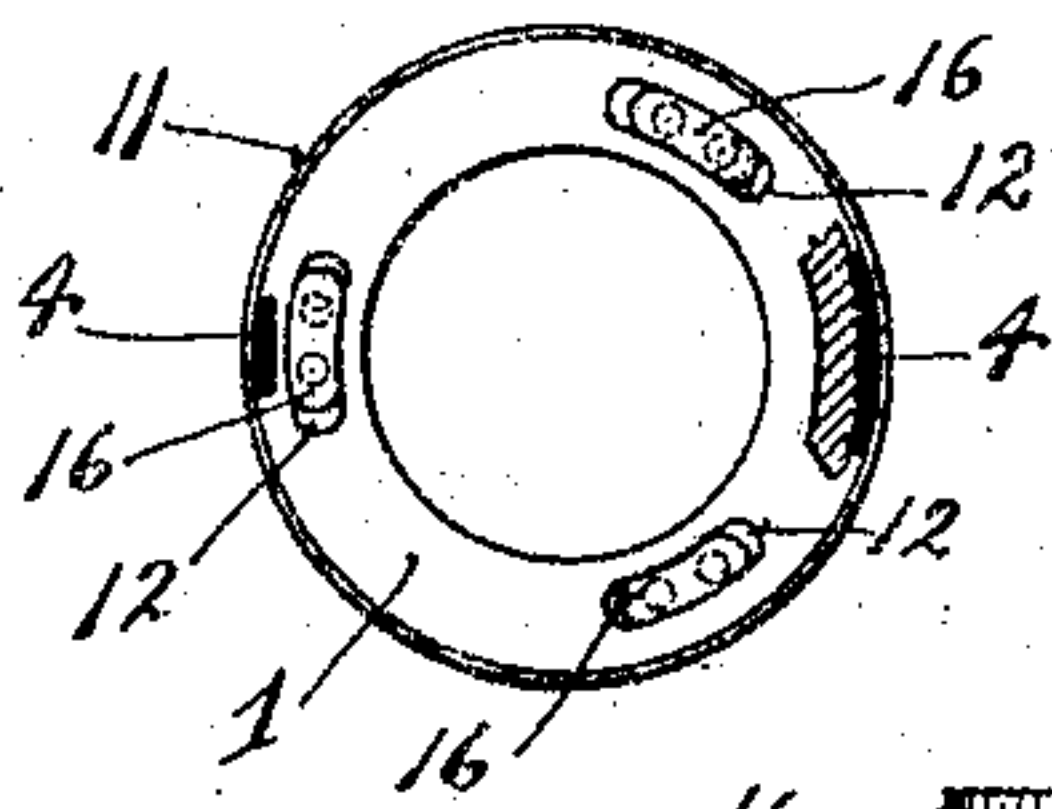
*Fig. 4.*



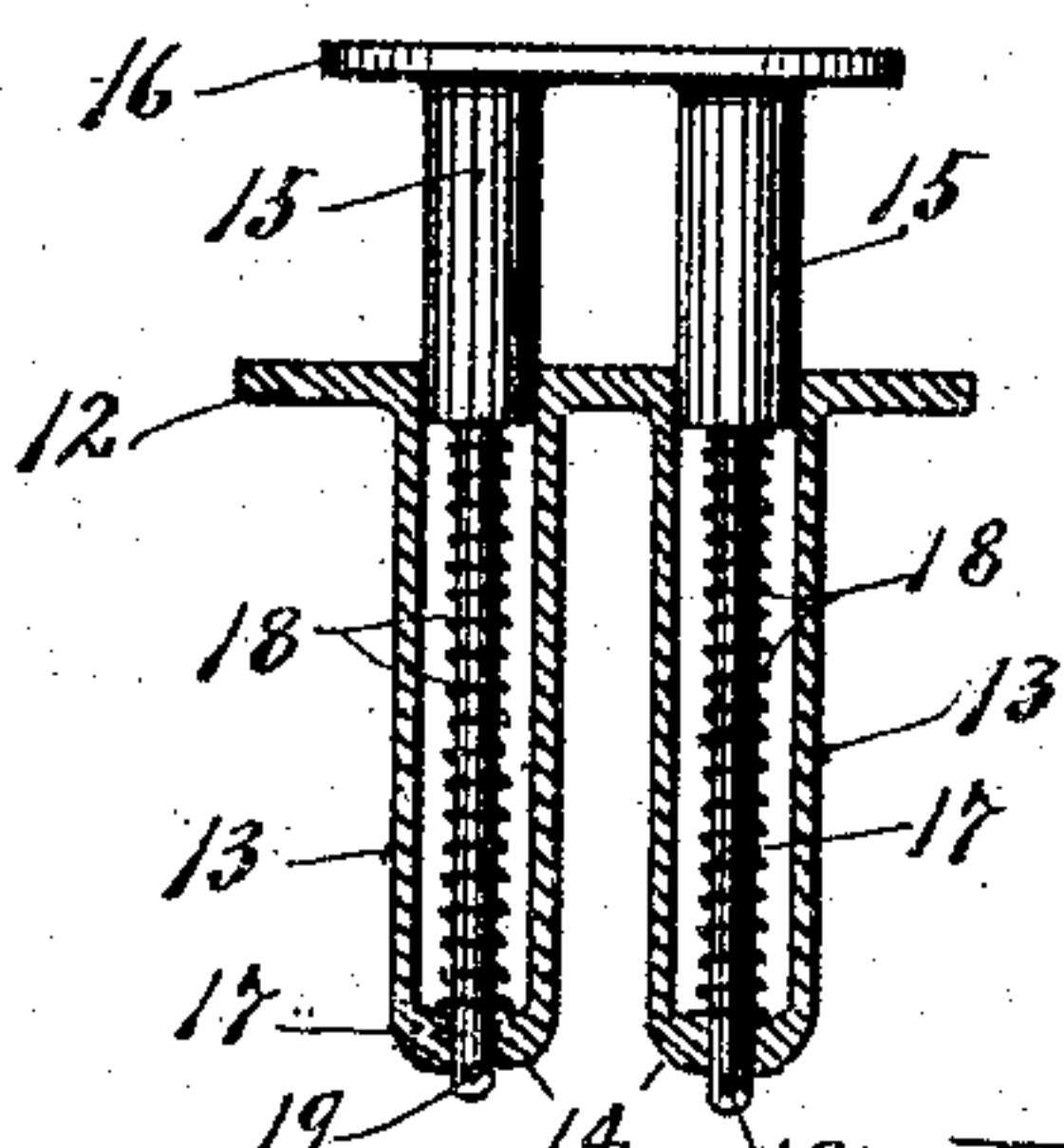
*Fig. 2.*



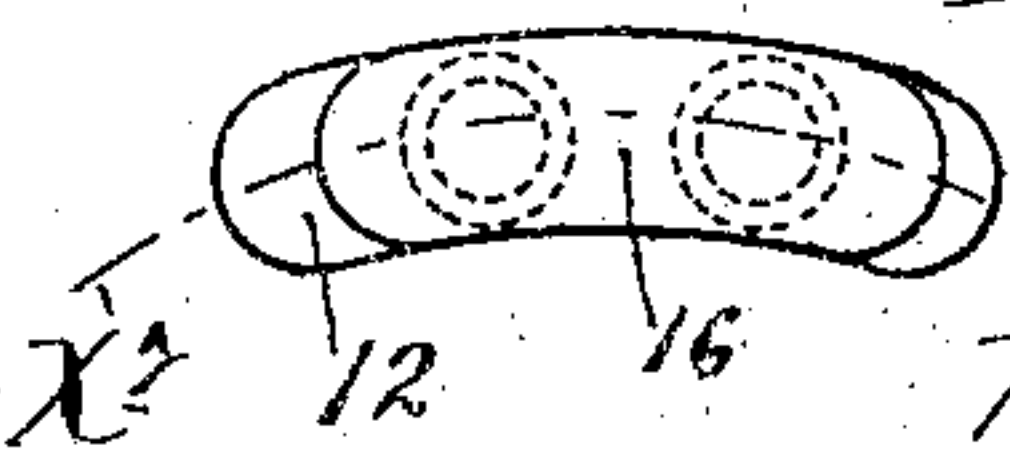
*Fig. 3.*



*Fig. 7.*



*Fig. 6.*



Witnesses.  
A. H. Opsahl.  
E. W. J. J. J.

Inventor.  
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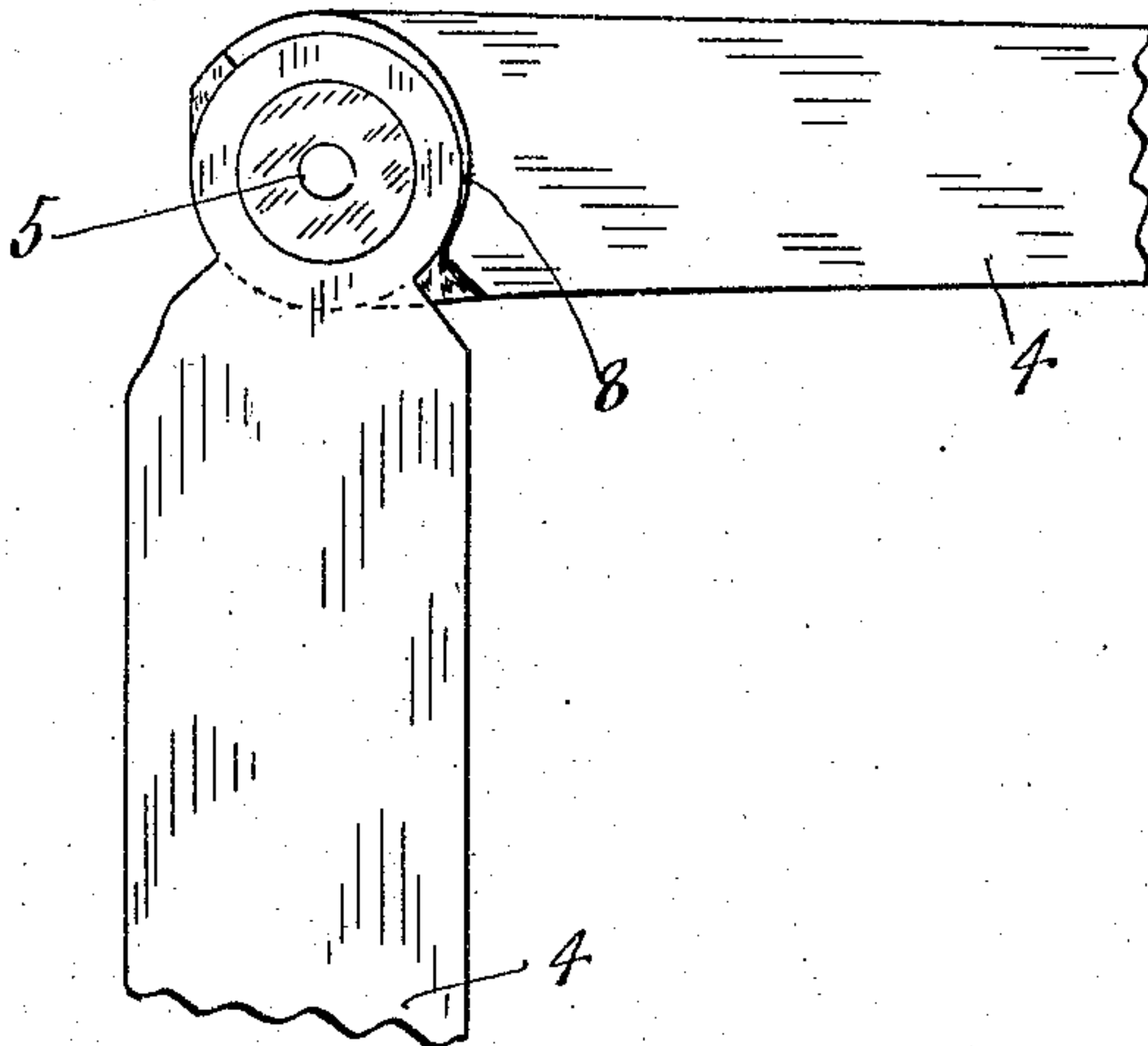
No. 780,645.

PATENTED JAN. 24, 1905.

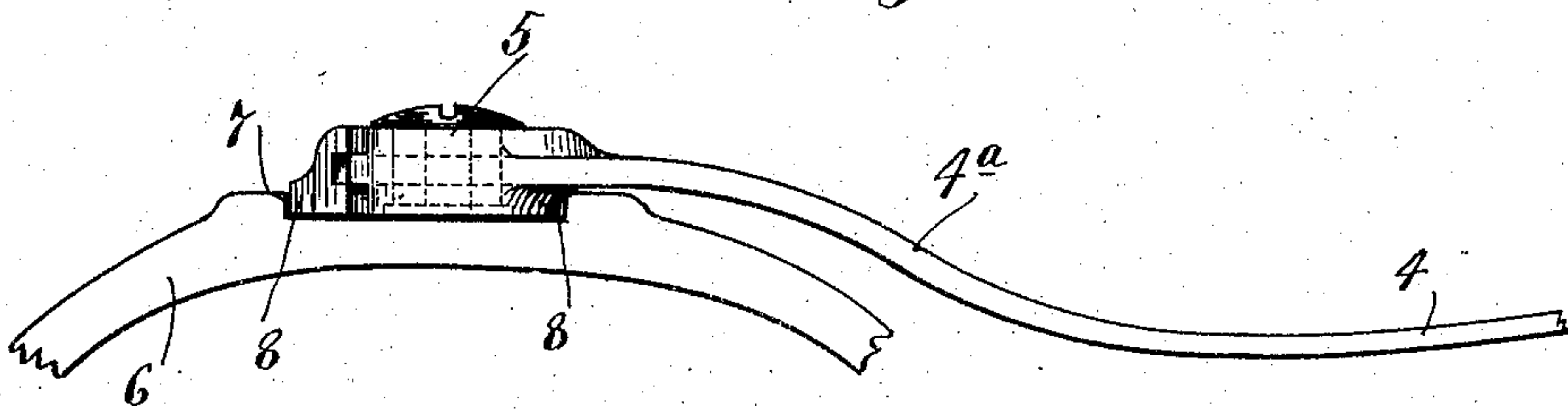
G. A. ERICKSON.  
ARTIFICIAL LEG.  
APPLICATION FILED APR. 21, 1904.

2 SHEETS—SHEET 2.

*Fig. 8.*



*Fig. 9.*



*Witnesses.*  
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*William M. Merchant*



## UNITED STATES PATENT OFFICE.

GUSTAF A. ERICKSON, OF MINNEAPOLIS, MINNESOTA.

## ARTIFICIAL LEG.

SPECIFICATION forming part of Letters Patent No. 780,645, dated January 24, 1905.

Application filed April 21, 1904. Serial No. 204,163.

*To all whom it may concern:*

Be it known that I, GUSTAF A. ERICKSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Artificial Legs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to artificial legs, and has for its object to improve the same in the several particulars hereinafter noted.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 shows the complete artificial leg in side elevation. Fig. 2 is a front elevation of a portion of the leg. Fig. 3 is a plan view of the lower leg-section, some parts being broken away. Fig. 4 is a detail in side elevation, showing the knee-joint portion of one of the metallic thigh-straps. Fig. 5 is an edge elevation of the strap shown in Fig. 4. Fig. 6 is a plan view of one of the spring cushion devices. Fig. 7 is a vertical section taken approximately on the line  $x'x'$  of Fig. 6. Fig. 8 is an elevation of the strap shown in Figs. 4 and 5 looking at the inner face of the strap and showing the strap bent at the knee-joint; and Fig. 9 is a plan view of the parts shown in Fig. 8, showing also a portion of the slip-socket.

The numeral 1 indicates the lower leg-section of the artificial limb, having the usual or suitable foot 2.

The numeral 3 indicates the thigh-socket, which is of usual construction and is connected to the leg-section 1 by a pair of metallic thigh-straps 4, rigidly secured to the said members, with its sections hinged at 5 by means of a hinge-screw.

The numeral 6 indicates the so-called "slip-socket," which at its sides is provided with channeled guides 7, that embrace the edges of the lower sections of the thigh-straps 4 and is guided for limited vertical movements thereby. By reference to Figs. 2 and 5 and 9 it will be noted that the upper sections of

the straps 4 are curved or bent inward at 4<sup>a</sup> over the sides of the slip-sockets, so that when the said straps are straightened out the slip-socket cannot be moved higher than the position shown in Fig. 2, and hence cannot be removed from the lower sections of the said straps 4. By reference particularly to Figs. 8 and 9 it will, however, be noted that the connected sections of the said thigh-strap 4 are provided, surrounding its pivot-joint 5, with hub portions 8, which lie wholly within the line of movement of the sides of the cooperating slip-socket guides 7, and it will also be noted that the upper curved portion 4<sup>a</sup> of said strap-joints has its hub portion located in a plane offset laterally from the adjoining side of the slip-socket.

The construction just described when the sections of the straps 4 are bent at a right angle to each other or approximately at such angle permits the slip-socket to be freely lifted off from the lower sections of the said thigh-straps 4, as clearly illustrated in Figs. 8 and 9. As shown, the slip-socket 6 is provided with a depending sleeve 9 of reduced diameter, which telescopes into the upper end of the leg-section 1, leaving the said socket with a shoulder 10 at its lower marginal portion in vertical line with the upper marginal portion of the leg-section 1. Also, as shown, the leg-section 1 is provided with a perforated metallic reinforcing-ring 11, secured to its upper marginal portion.

The improved cushioning devices, of which, as shown, there are three, are constructed as follows: The numeral 12 indicates a flat plate which is integrally formed with a pair of tubular spring seats or sleeves 13, the lower ends of which are closed, except for small central perforations, so as to form the said sleeve with spring-supporting heads 14. A pair of plungers 15, which are integrally formed with or rigidly connected to a tie-plate 16, work telescopically one within each of the sleeves 13 and are provided with reduced stems 17, which work downward through small central perforations of the sleeve-heads 14. Coiled springs 18 surround the stems 17 and react against the sleeve-heads 14 and the lower shouldered ends of the plungers 15.



Small pins 19, inserted through the projecting lower ends of the stems 17, engage the sleeve-heads 14 to limit the upward movements of the plungers 15 and tie-plate 16, as shown in Fig. 7.

The sleeves or tubular seats 13 are set into suitable vertical recesses formed in the upper marginal portion of the leg-section 1, and the plate 12 is preferably countersunk into the said leg-section, as shown in Fig. 2. As shown in Fig. 3, the cushioning devices are located at equidistant points around the upper marginal portion of the leg-section 1, with the tie-plate 16 located just below the annular shoulder 10 of the slip-socket 6. Normally and, in fact, in all operative positions of the slip-socket the said shoulder 10 rests upon the several tie-plates 16, so that the slip-socket is yieldingly supported by the several cushioning devices.

When the slip-socket is lifted from working position, the several cushioning devices as entireties may be lifted from working position without requiring the removal of any bolt, pin, or similar device.

The leg described while extremely efficient for the purposes had in view is of comparatively small cost, has few parts to get out of order, and may be easily taken apart. The said leg of course is capable of modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In an artificial leg, the combination with the lower leg-section, a thigh-socket, and hinged metallic thigh-straps connecting them, of a slip-socket movable on the lower sections of said hinged straps, the upper sections of said straps being bent in over the upper edges of said slip-socket, and the joints between the strap-sections being constructed to permit said slip-socket to be moved upward from working position when the upper and

lower strap-sections are bent approximately at a right angle to each other, substantially as described.

2. In an artificial leg, the combination with the lower leg-section and a slip-socket, of a plurality of cushioning devices, each comprising a plate 12 having a plurality of depending sleeves 13, formed at their lower ends with spring-supporting heads 14, the tie-plate 16, having plungers 15, telescoping into said sleeve 13, and formed with reduced ends 18, working through the heads 14 of said sleeves 13, and the coiled springs 18 surrounding said stems 17 and compressed between the said heads 14 and the shouldered lower ends of said plungers 15, said stems 17 having stops for limiting their upward movements, and said sleeves 13 being countersunk into the upper marginal portion of said leg-section 1, with the tie-plate 16 of the several cushioning devices in position for engagement with said slip-socket, substantially as described.

3. In an artificial leg, the combination with the lower leg-section and a slip-socket, of a plurality of cushioning devices, each comprising a sleeve counterseated in the marginal portion of the lower leg-section, below the margin of the slip-socket, a plunger working in said sleeve and having a stem working through the bottom of said sleeve, and provided below the said bottom with a stop for limiting the upward movement of the plunger, a coiled spring surrounding said stem and compressed between said plunger and the bottom of said sleeve, the said sleeve and plunger being together removable from the said lower leg-section without separation the one from the other, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GUSTAF A. ERICKSON.

Witnesses:

R. C. MABEY,  
F. D. MERCHANT.