

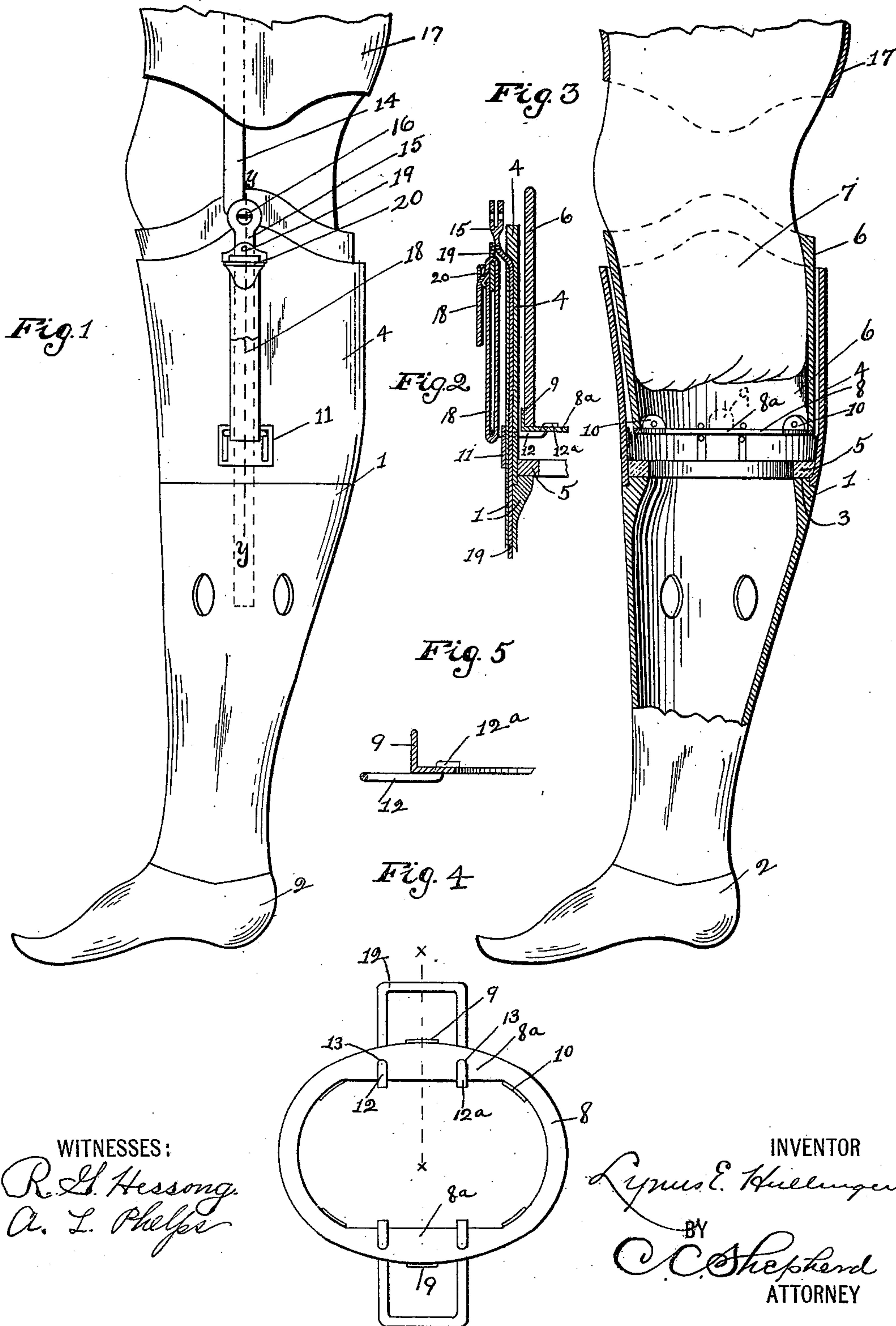
No. 665,529.

Patented Jan. 8, 1901.

L. E. HULLINGER.
ARTIFICIAL LEG.

(Application filed May 31, 1900.)

(No Model.)



WITNESSES:
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LYNUS E. HULLINGER, OF COLUMBUS, OHIO, ASSIGNOR TO THE COLUMBUS PHARMACAL COMPANY, OF SAME PLACE.

ARTIFICIAL LEG.

SPECIFICATION forming part of Letters Patent No. 665,529, dated January 8, 1901.

Application filed May 31, 1900. Serial No. 18,530. (No model.)

To all whom it may concern:

Be it known that I, LYNUS E. HULLINGER, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Artificial Legs, of which the following is a specification.

My invention relates to the improvement of artificial legs; and the objects of my invention are to provide an improved yielding and adjustable connection of the stump and artificial leg, to provide an improved connection of the stump-containing-socket section and the leg-section, and to produce other improvements, the details of construction and arrangement of parts of which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved artificial leg, showing the same in use where amputation occurs below the knee. Fig. 2 is a detail sectional view through one side of the upper portion of the leg, the same being taken on line *yy* of Fig. 1. Fig. 3 is a central vertical section of the upper portion of the same. Fig. 4 is a detail plan view of the bottom ring or plate of the stump-containing socket, and Fig. 5 is a sectional view on line *xx* of Fig. 3.

Similar numerals refer to similar parts throughout the several views.

1 represents the artificial leg, which is formed of any suitable material and which terminates in the usual foot portion 2, suitably connected therewith. The leg-body 1, which is formed hollow, has the wall of its upper end portion enlarged or projected inwardly to form a horizontal shoulder 3, and from the outer side of this shoulder portion rises the socket extension 4 of said leg. Upon the inward extension or shoulder 3 of the leg-body 1 is secured and supported a cushion-ring 5, of rubber or similar yielding material. Within the leg-socket extension 4 is movably supported in the manner hereinafter described the stump-containing-socket section 6, within which the natural stump 7 is adapted to fit and extend to a point below the center thereof. The lower end of the socket-section

6 has secured to its under side a bearing ring or plate 8, which, as indicated at 8^a, is flanged or extended inwardly on opposite sides. From points on the outer side of the base-ring 8 project upward attaching-ears 9, and from suitable points on the inner side of said ring project upward similar attaching-ears 10. By riveting the ears 9 and 10 to the outer and inner sides of the lower portion of the socket-piece 6 the ring 8 is firmly united with said socket-piece and forms a rigid base therefor, which in the manner hereinafter described is adapted to contact with the cushion-ring 5. In opposite sides of the socket portion 4 of the leg 1 I form openings 11, one of which is shown in Fig. 1 of the drawings.

12 represents yokes or keepers of wire or similar material, the parallel arms of these keepers terminating in short upward and thence outward bent portions, as indicated at 12^a in Figs. 4 and 5. One of the keepers 12 being partially inserted through each of the openings 11, the upwardly and outwardly bent portions 12^a thereof are by first turning said keeper to a substantially vertical position inserted through openings 13 in the adjoining wider portion 8^a of the ring 8, the forwardly-extending terminations of said keeper thus being made to engage the upper side of the ring 8 in the manner clearly indicated in Fig. 5.

14 and 15 represent, respectively, the usual upper and lower joint or connecting-bars which are jointedly connected in the usual manner at 16 on the opposite sides of the upper end portion of the socket-piece 4. The lower section 15 is united with the lower leg-section 1, and the upper bar-section 14 is united with the upper or thigh-casing section 17.

On each side of the extension 4 of the leg 1 I provide an elastic supporting-strap 18, one end of the latter being connected with the upper portion of the bar 15 through the medium of a lip or extension 19 of a buckle 20, with the back of which one end of said elastic strap is connected. From these buckle-backs the straps 18 extend downward and are looped through the outwardly-projecting portions of the keepers 12 and thence carried upward

through the usual clamping portion of the buckle 20. As indicated in Fig. 3 of the drawings, the elastic straps 18 are so clamped in connection with the buckle 20 as to normally retain the lower end of the socket-section 6 and its base-ring at a desirable height above the cushion-ring 5. It will be observed that the outer surfaces of the section 6 and the inner surface of the section 4 are substantially parallel and that said parts are of such relative sizes as to admit free upward and downward movement of the section 6 within the portion 4 without binding. In the walking action it is obvious that at each step of the wearer the section 6 may descend until its base-ring 8 bears upon the cushion-ring 5, the latter, owing to its yielding quality, operating, in conjunction with the elastic straps 18, to remove any tendency toward jar on the leg or body of the wearer. It will also be observed in the construction which I have shown herein that the bottom or greater portion of the bottom of the section 6 is left open to insure a desirable ventilation, and that the normal distance between the bottom of said section 6 and the cushion 5 may be increased or decreased, as desired, by raising or lowering the straps 18.

Although my improved construction is shown and described as applied to the lower portion of the leg or to cases where the amputation has been made below the knee, it is obvious that substantially the same construction might be applied to the leg in cases of amputation above the knee-joint, in which case, however, it would be considered desirable to employ an additional one of the straps 18.

Having now fully described my invention,

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

1. In an artificial leg, the combination with the leg-body 1 and its socket extension 4, said leg-body being formed with an internal shoulder 3 and a yielding ring mounted on said shoulder, of a stump-holding-socket section 6 adjustably suspended within said socket-section 4 by yielding straps, substantially as specified.

2. In an artificial leg, the combination with the leg-section 1 and its socket extension 4, said section 1 having an internal shoulder 3 and a yielding cushion-ring mounted thereon, of a socket-section 6 suspended within said section 4 by elastic straps, and a rigid base-ring 8 secured to the lower end of said section 6, substantially as specified.

3. In an artificial leg, the combination with the leg-body 1 having a socket extension 4, a yielding ring 5 mounted in the upper end of said leg-body, said socket extension 4 having side openings 11 and joint-bars 19 connected with said leg-body, of a stump-containing-socket piece 6 having a rigid ring secured to its lower end, keepers 12 the inner ends of which engage said ring and project through said openings 11, buckles on opposite sides of the socket-section 4 and elastic straps running from said buckles through the projecting portions of said keepers and having their free ends adapted to be clamped or held by said buckles, substantially as specified.

LYNUS E. HULLINGER.

In presence of—

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