G. DE CATELAN CATELLANI.

ARTIFICIAL LIMB.

APPLICATION FILED APR. 16, 1918.

1,305,768.

Patented June 3, 1919.

Fig. 1

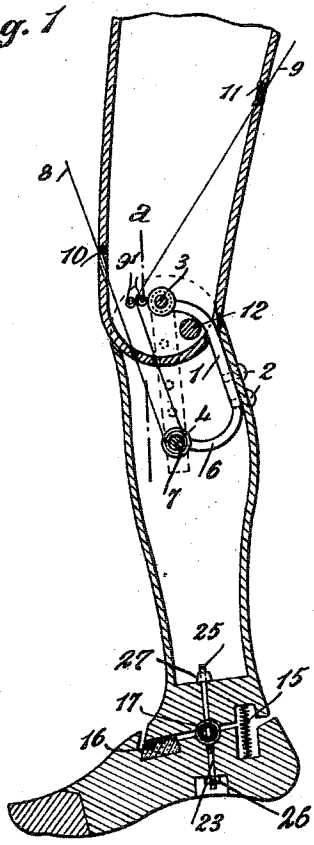


Fig. 2

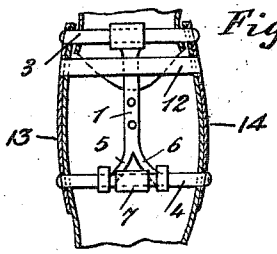


Fig. 3

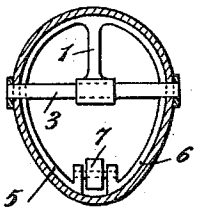


Fig. 4

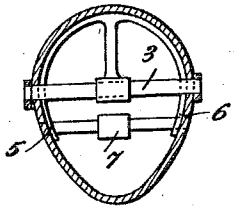


Fig. 5

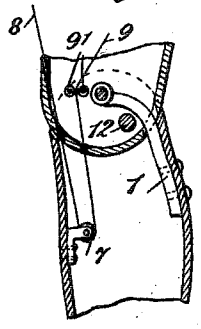


Fig. 6

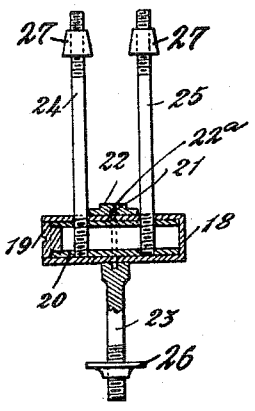
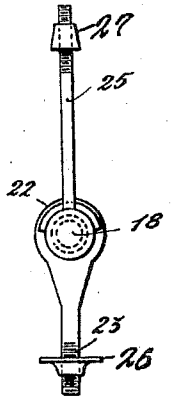


Fig. 7



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UNITED STATES PATENT OFFICE.

GASTONE DE CATELAN CATELLANI, OF ROME, ITALY.

ARTIFICIAL LIMB.

1,305,768. Specification of Letters Patent. Patented June 3, 1919.

Application filed April 16, 1918. Serial No. 228,832.

To all whom it may concern:

Be it known that I, GASTONE DE CATELAN CATELLANI, manufacturer, a subject of the King of Italy, and residing at Rome, Italy, (whose post-office address is Via del Quirinale No. 21,) have invented certain new and useful Improvements in or Relating to Artificial Limbs, of which the following is a specification.

The present invention relates to improvements in artificial legs, and particularly to that class in which the movement of the lower portion of the leg is obtained by the shoulders of the wearer through the medium of straps or suspenders.

I will describe one form of artificial leg embodying my invention, and a number of modifications, and will point out the novel features thereof in claims.

In the accompanying drawings, Figure 1 is a view showing in vertical section one form of artificial leg embodying my invention.

Fig. 2 is a sectional view taken on the line *a*—*a* of Fig. 1.

Figs. 3 and 4 are transverse sectional views showing modified forms of my invention.

Fig. 5 is a vertical sectional view showing a further modified form of my invention.

Fig. 6 is an enlarged detail view showing in front elevation one form of device for connecting the foot and ankle of the artificial leg, and Fig. 7 is a side view of the same.

Referring to the drawings in detail, and particularly to Fig. 1, 1 designates a bar of metal of a shape adapted to suit the curve of the calf of the leg, and is secured to the leg section by means of the screws 2. The bar 1 is preferably bent at its extremities in the same direction, and is pivoted to rods 3 and 4 mounted on the thigh and leg sections, respectively. The rod 3 is virtually the pivot point about which the leg section moves with relation to the thigh section. The lower end of the bar is bifurcated to provide arms 5 and 6 which are bored to receive the rod 4. Arranged between the arms 5 and 6, and mounted upon the rod 4 is a sleeve 7, as shown in Fig. 2. 8 and 9 designate the ends of a belt or strap, which has its intermediate portion trained around the sleeve 7, while the ends thereof are suitably secured to the suspenders of the operator, as will be understood. The strap is guided during movement by pulleys 10 and 11, which are arranged within suitable openings formed in the thigh section.

12 designates a transversely disposed rod which is arranged to limit the rearward movement of the leg section with respect to the thigh section, whereby the leg section is prevented from assuming a too advanced position with relation to the vertical axis of the leg. 13 and 14 designate two metallic bands, which, as shown in Fig. 2, are arranged upon opposite sides of the leg section, and are suitably bored to receive the ends of the rods 3, 4, and 12.

The bar 1 may be of any suitable shape, such as shown in Fig. 3, wherein the arms 5 and 6 follow the internal contour of the hollow calf of the leg, while the extremities are bent at suitable angles to support a pintle which carries the roller or sleeve 7. Another manner of forming the bar 1 is shown in Fig. 4.

In Fig. 5, the lower end of the bar 1 terminates adjacent the screws 2, so that it is unnecessary to use the rod 4. The roller 7 is in this instance supported at the forward part of the leg section in the manner shown.

Referring again to Fig. 1, 15 designates a spring which performs the function of the rear tendon of the foot in a manner which is well understood in the art. 16 designates a block of rubber which is arranged between the ankle and foot portion of the artificial leg so that it performs the functions of the front tendon of the foot.

Referring now to Figs. 1, 6, and 7, 17 designates a rectilinear joint which forms the center of articulation between the foot section and leg section. The joint 17 comprises a hollow cylinder 18, one extremity of which is closed, while the other extremity is internally threaded to receive a screw plug 19. Arranged within the cylinder 18 is a tube 20 which is confined within the cylinder by means of the plug 19, as will be understood. The tube 20 is designed to contain a lubricant and is provided with an opening 21 to permit the lubricant to pass into a groove 22^a formed on the inner face of a ring 22. The ring 22 surrounds the cylinder 18, and is free to rotate thereon. The ring 22 is formed with a dependent extension 23, having the lower end thereof threaded to receive a knot 26. 24 and 25

designate bolts, the lower ends of which have a threaded engagement with the joint 17, while the upper ends are also threaded to receive the nuts 27.

As shown in Fig. 1, the leg section and foot section are provided with suitable openings to receive the joint 17, the rods 24 and 25, and the extension 23, the nuts 26 and 27 being arranged, as shown, to secure the joint in proper position and to prevent displacement of the same. It will be seen from this construction that the foot section swings about the joint as a center, and is normally biased to the position shown in Fig. 1 by means of the spring 15.

It will be readily understood that the artificial leg is manipulated by the movements of the shoulders of a person wearing the limb, an actual pull being exercised upon the leg section of the limb through the medium of the strap or belt.

Although I have herein shown and described only four forms of artificial limb embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention, and the spirit and scope of the appended claims.

What I claim is:

1. An artificial limb comprising a leg section, a rod mounted on the leg section, a thigh section pivoted to said rod, a bar fixed to the leg section and having the upper end thereof pivoted to the rod, a sleeve loosely fitted on the lower end of said bar, and a flexible member trained about such sleeve for actuating the leg section.

2. An artificial limb comprising a leg section, a rod mounted on the leg section, a thigh section pivoted to said rod, a bar fixed to the leg section and having the upper end thereof pivoted to the rod, a rotatable member within the leg section, a flexible member trained about said member for actuating the leg section, and a rod fixed in the thigh section and engageable with said bar for limiting the movement of the leg section in one direction.

In testimony whereof I have hereunto signed my name in the presence of two witnesses.

GASTONE DE CATELAN CATELLANI.

Witnesses:
GIOVANNI BORTOLUZZI,
LUIGI DINTI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."