C. E. STINEHART.

FIBER KNEE CONTROL STOP FOR ABOVE KNEE AMPUTATIONS.

APPLICATION FILED APR. 26, 1920.

1,365,205. Patented Jan. 11, 1921.

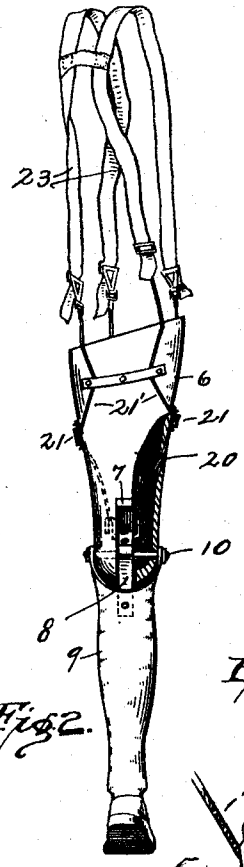


Fig. 2.

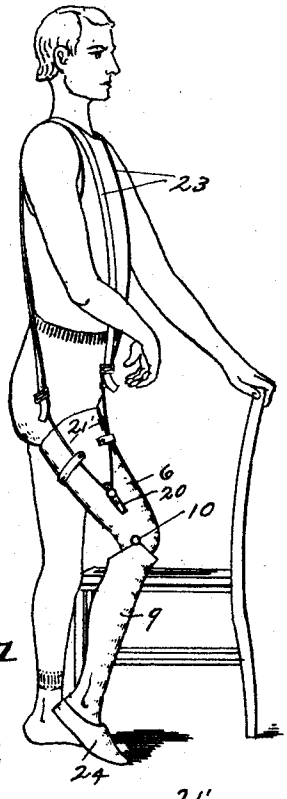


Fig. 1

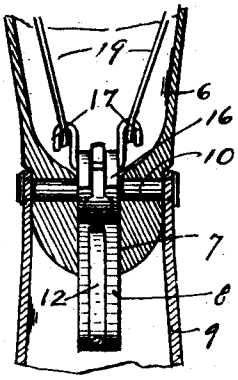


Fig. 5.

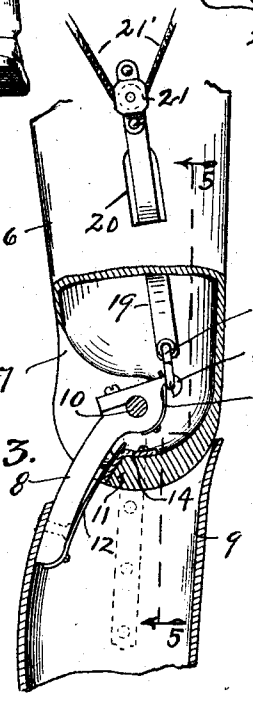


Fig. 3.

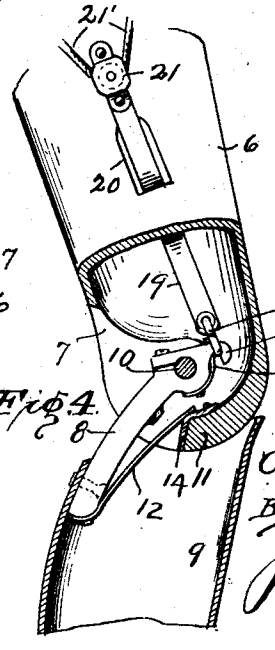


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES E. STINEHART, OF INDIANAPOLIS, INDIANA.

FIBER KNEE-CONTROL STOP FOR ABOVE-KNEE AMPUTATIONS.

1,365,205. Specification of Letters Patent. **Patented Jan. 11, 1921.**

Application filed April 26, 1920. Serial No. 376,645.

To all whom it may concern:

Be it known that I, CHARLES E. STINEHART, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Fiber Knee-Control Stops for Above-Knee Amputations, of which the following is a specification.

This invention relates to knee-joint construction of artificial limbs for leg amputations above the knee, and the object of the invention is, first, to provide a positive stop at the upright or vertical position of the leg; second, to allow the knee to bend naturally as the wearer steps forward and to maintain the lower leg-member in a natural oblique position while the step is in progress; third, to lift the leg by suspenders over the shoulders of the wearer and attached near the hinge-pin of the knee; fourth, to provide ready means for the release of the suspender attachment; fifth, to render the articulation of the knee-joint noiseless, free and natural, and sixth, to provide a strong, light and durable article.

I accomplish the above and other objects which will hereinafter appear, by the mechanism illustrated in the accompanying drawing, in which—

Figure 1, is a view of my invention in position of use on a wearer; Fig. 2, is a view in rear elevation and partial vertical section of my invention; Fig. 3, is a fragment showing the knee-joint in vertical section with the leg in upright or vertical position; Fig. 4, is a similar view with the leg bent, and Fig. 5, is a vertical section on the line 5—5 of Fig. 3.

Like characters of reference indicate like parts in the several views of the drawing.

The upper or thigh-member 6 receives the stump or unamputated portion of the natural leg in the usual manner. Its lower end at the back has a vertical slot 7, to receive a flat sided extension 8, of strong and light material. This extension is bolted to the back of a lower leg-member 9, and terminates at its upper end with a head having a hole through which a knee-joint pin 10 passes. This pin passes through holes in the member 6, on each side of the extension 8, as shown in Fig. 5, and also through eyes in the lower leg-member 9. The lower end 11 of the slot 7, forms a stop which limits the swing forward of the lower-leg member 9 by contact with the end of the slot of the extension 8. A leaf-spring 12 has its lower end secured to the lower part of extension 8, and its upper end bears against the end 11 of slot 7, to normally flex the knee-joint when the lower member of the leg 9 is so released as to be able to respond. A rubber bumper 13 is fastened as shown to the extension 8, to lessen shocks and silence the movements; and to relieve wear and noise of contact of the spring 12 against the end 11 of the slot, I provide a bearing of leather or the like material 14.

The head of extension 8 has a split 15 from the rear in to the hole for pin 10, and, by means of a screw the split members are drawn together to clamp the extension to the pin.

Formed out of the material of the extension head is a front hook 16, to receive a bar terminating with members bent at right angles and having end hooks 17, 17. This hook is bifurcated to receive a spring 18 between the resulting members, which spring bears against the bar having hooks 17, to take up lost motion and prevent rattling. Straps 19, 19, have eyelets to engage the respective hooks 17. The straps extend outside of the hollow leg-member through diametrically opposite side openings 20, and terminate with loops 21, through which cords 21′, are passed. These are held and guided by straps 22, and to each cord-end an end of a suspender 23, is buckled, as shown in Figs. 1 and 2.

The lower leg-member 9 terminates with a foot 24 of usual construction and material.

In the operation of my invention the suspenders are placed over each shoulder, thereby holding the artificial leg in position and also providing a means for lifting it up by raising the shoulder at each step in the act of walking. The strap and link-bar adjust themselves to maintain a straight pull as the hook 16 swings around pivot-pin 10. The springs 12 and 18, bumper 13 and leather 14 prevent rattling and noise.

Having thus fully described my invention, what I claim as new and wish to secure by Letters Patent of the United States, is—

1. In an artificial leg, a shin member having an extension, a thigh-member entering the shin member and having a slot receiving said extension, a hinge-pin passing through the extension and both of said members the articulation being limited by contact of the

extension with the end of the slot, and spring means attached to the extension to prevent lost motion and noise at the joint.

2. In an artificial leg, a shin member having an extension, a thigh-member entering the socket member and having a slot receiving said extension, a hinge-pin passing through the extension and both of said members the articulation being limited by contact of the extension with the end of the slot, a lifting means comprising a link with double strap attaching hooks attached to the extension in front of the hinge pin, and elastic means to prevent lost motion and noise at the points of contact between the link and extension retaining it.

3. In an artificial leg, a shin member having an extension, a thigh-member entering the socket member and having a slot receiving said extension, a hinge-pin passing through said extension and both of said members the forward movement of the shin member being limited by contact of said extension with the lower end of the slot and a spring between the extension and said slot-end and attached to the extension and normally separating the two.

4. In an artificial leg, a shin member having an extension, a thigh-member entering the socket member and having a slot receiving said extension, a hinge-pin passing through said extension and both of said members the forward movement of the shin member being limited by contact of said extension with the lower end of the slot, a leaf spring between the extension and said slot-end initially flexing the knee-joint at all positions of the shin and thigh members, suspenders, and means from and in front of the extension for securing the suspenders to the latter.

5. In an artificial leg, a shin member having an extension, a thigh member entering the socket member and having a slot receiving said extension, a hinge-pin passing through said extension and both of said members said extension having a hook in front of the hinge-pin, a link in the hook for attachment of leg-lifting means and spring-means bearing directly against the side of the link and preventing rattling.

Signed at Indianapolis, Indiana, this the 23d day of April, 1920.

CHARLES E. STINEHART.