

Jan. 21, 1941.

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2,229,575

BATH PROTECTOR FOR ARTIFICIAL LIMBS

Filed Dec. 12, 1938

Fig. 1.

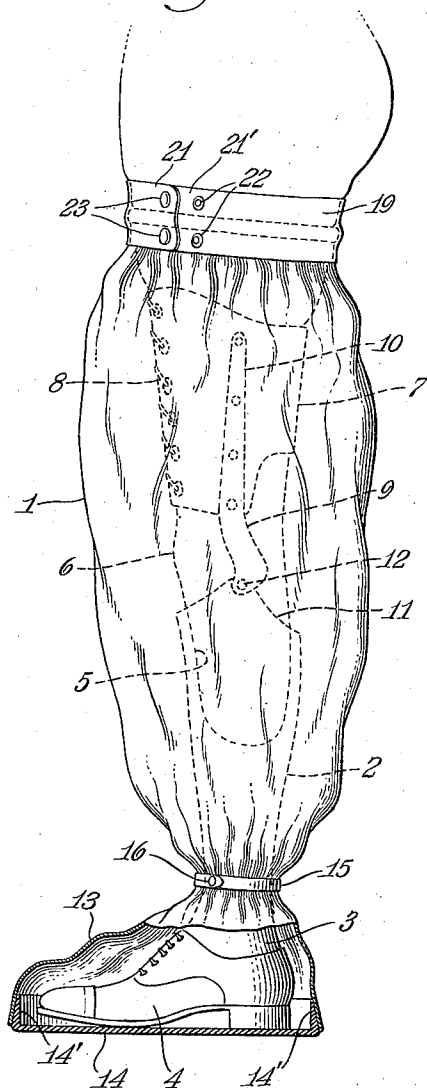


Fig. 2.

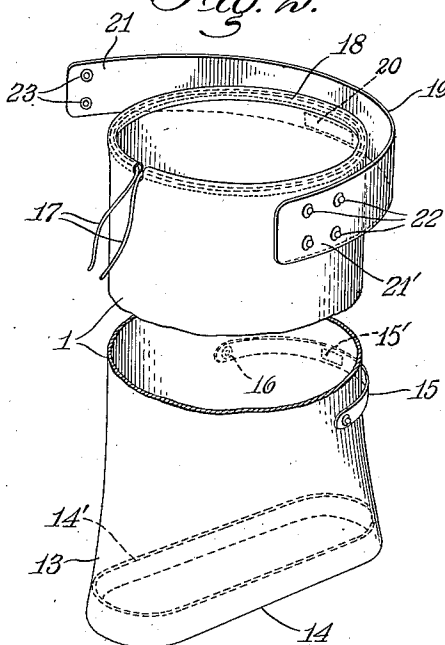
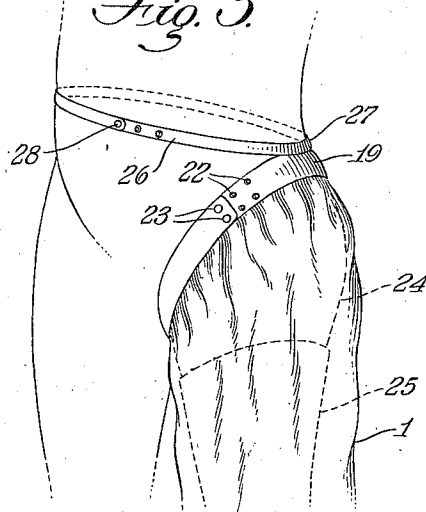


Fig. 3.



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2,229,575

BATH PROTECTOR FOR ARTIFICIAL LIMBS

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Application December 12, 1938, Serial No. 245,317

4 Claims. (Cl. 36—8.1)

This invention relates to protectors for artificial limbs and more particularly to a waterproof boot or bag-like article of apparel to be placed temporarily and protectively over an artificial limb while the wearer is taking a shower or other bath.

Wearers of artificial lower limbs experience much annoyance and inconvenience in bathing, inasmuch as they are compelled to remove the limbs while taking a bath and thereby having no ample means of support, which difficulty and inconvenience is even greater where the person has both limbs amputated, while bathing without removal of the artificial limb or limbs has the disadvantage of wetting the limb and resulting in deterioration or interference with the proper operation of the articulated members of the limb or hinged or other movable connections as well as the hanger means or attaching and supporting harness thereof.

It is found that an artificial limb wearer can easily and conveniently move about and balance himself while bathing, in a shower or otherwise, if the major supporting leg structure is retained in place, even though the hanger and super-harness elements or means are detached.

The principal object of the present invention is to provide simple practical and effective protective means for artificial limbs of either the below knee or above knee amputation type, to be readily applied and removed, at will, by the wearer when taking a bath.

With the foregoing and other objects and advantages to be attained, as will hereinafter more fully appear, the invention consists in the novel general structure and arrangement of the device and in the particular parts and combinations and arrangements of parts thereof as hereinafter described and set forth in the appended claims, reference being had to the accompanying drawing illustrating a practical adaptation of the invention, in which:

Figure 1 is a view in side elevation and partial vertical section showing a protective device applied to an artificial limb of the below knee amputation type;

Figure 2 is a perspective view showing details of the upper and lower portions of the device detached, the intermediate portion of the device being broken away and removed to foreshorten the view; and

Figure 3 is a view illustrating a practical method of applying the upper portion of the protective device to the body of the wearer in the case of an above knee amputation.

Referring now more particularly to Figures 1 and 2 of the drawing, the numeral 1 designates the main body portion of the device as applied for the protection of a below knee amputation type of artificial leg 2, which latter, as shown, has a foot member 3 covered by a shoe 4. In this type of artificial limb the upper leg portion 2 is formed with a socket to receive the stub portion 5 of the wearer's natural leg below his knee 6. The artificial leg portion 2 is articulate with relation to an upper corset 7 which is fitted about the thigh portion of the wearer's leg and laced in place, as at 8, the hinged connection between said corset 7 and lower leg member 2 of the artificial limb being effected on opposite sides by specially formed arms 9 whose upper portions 10 are riveted or otherwise securely fastened to the corset 7, the lower ends of said arms 9 being pivotally attached to upper side extensions 11 on the lower leg member 2, as at 12. The foregoing is generally descriptive of a common structure of artificial limb of below knee amputation type, and as far as the present invention is concerned, it is obvious that the artificial leg structure may vary in many particulars, and suffice it to say that in the use of the protective device of the present invention all superharness or supporting elements or means above the corset 7 are removed from the artificial limb while the wearer is taking a bath with the protective device applied.

The main body portion 1 of the protective device which is in the character of a bag or sleeve of rather full proportions and of substantially the same transverse dimensions throughout its length whereby to freely receive therein the foot portion 3 of the artificial limb and also to be easily drawn up over the upper leg portions thereof, is constructed of a suitable waterproof material such as rubberized cloth, or, as may be more preferable, a transparent material commercially known as "oiled silk." For either the below knee or the above knee amputation type of artificial limb, the foot portion 13 of the protective device may be the same. In either case, as shown more clearly in Figure 1, the foot portion 13 is provided with a relatively heavy flat bottom or sole 14 of any suitable material capable of withstanding the wear imposed thereon, which material may be of vulcanized rubber or any other waterproof medium, and the same may be comparatively stiff or more or less flexible, as may be desired. The flat bottom or sole portion 14 may be attached to the adjacent end portion of the bag-like body 1 in any approved manner.

However, it is preferable to provide the bottom or sole portion 14 with an upwardly tapered annularly flanged margin 14', which is directly cemented, vulcanized, or otherwise secured with

leak tight effect to the bag-like body.

In the ankle region of the limb the protective device 1 is provided with a strap element 15 secured at its middle, as at 15', so as to encircle and retain in gathered condition the adjacent portion of the device 1, said strap element being provided with a conventional snap fastener 16, buckle or other approved fastening device.

At the top of the bag or sleeve portion of the device 1 a drawstring 17 is provided, said string being located in a conventional hem 18 whereby the upper portion of the device may be gathered and tied tightly about the thigh portion of the natural leg of the wearer above the corset 7 of the artificial limb. In order to effect a water-tight seal about the applied upper portion of the protective device 1, said upper portion is provided with an elastic band 19, also of waterproof material, said band being of substantial width and permanently attached at its middle to the upper end portion of the protective device, as at 20, so that its upper marginal portion extends above the hem 18 of the body bag (see Figure 2), and the band, in use, being carried around the gathered and tied portion of the device with one free end portion 21 lapped over the opposite free end portion 21' (see Figure 1) and preferably fastened by means of conventional snap fasteners, the stud members 22 of which are provided on the end portion 21' and the socket members 23 thereof being provided on said overlapping end portion 21. The provision of a multiplicity of stud members 22 in annular arrangement on the band 19 is to provide for varying the tension of the sealing band 19 and to avoid undue looseness which may occur should the band lose some of its inherent elasticity.

In the use of a device in accordance with the present invention with an artificial limb of the above knee type of amputation, as illustrated in Figure 3, the regular superharness or attaching and supporting means provided in connection with the limb in the ordinary use thereof is removed, but the stub of the thigh portion of the wearer's natural limb 24 is left in the socketed upper portion of the upper artificial leg member 25, in which application of the protective device 1 its upper end portion is applied over the hip and about the crotch of the wearer by means of the aforesaid drawstring 17 and outer sealing band 19, with this difference, however, a supplemental strap 26 is attached, as at 27, to the adjacent portions of the device 1 or the band 19, or both, as may be desired. This supplemental band 26 is carried about the waist of the wearer and is fastened at its ends as at 28 by suitable means such as the fastener elements 22 and 23 provided on said sealing band 19.

By the application of the protective device of the present invention to the artificial limb or limbs as herein described, not only is the wearer enabled to steady and balance himself while bathing, in a shower or otherwise, but the artificial limb or limbs are kept dry and free from any injurious or discommoding effect of the water, and while the illustrations in the accompanying drawing embody practical adaptations of the invention, it is understood that considerable modification and alteration may be made there-

in without departing from the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. An artificial limb protector of the character described, comprising a waterproof bag-like device having a closed reinforced foot portion, the open upper portion of the device having a drawstring whereby to be tightened about the natural body portion of the wearer of the artificial limb, above the limb, and an elastic sealing and retaining band about the tightened upper portion of the device.

2. An artificial limb protector of the character described, comprising a waterproof bag-like body of substantially the same transverse dimensions from top to bottom, and being closed throughout the extent thereof except at its top, the size of the bag being sufficient to receive freely the foot portion of the limb and to be readily drawn up over the upper leg portions of the limb, a retaining band to encircle the portion of the bag gathered about the ankle portion of the inserted artificial limb with the foot portion of the limb disposed upon the bottom of the bag, and means for tightening and sealing the top portion of the bag about the natural body portion of the wearer above the artificial limb, said means including provision on the marginal portion of the bag body proper for gathering and tightening the same, and a supplemental sealing band of substantial width and attached to encircle the gathered and tightened portion of the bag body proper and marginally directly engage the adjacent body portion of the wearer.

3. An artificial limb protector of the character described, comprising a waterproof bag-like body having a flat reinforced bottom and closed throughout the extent thereof except at its top, a retaining band to encircle the portion of the bag gathered about the ankle portion of the inserted artificial limb with the foot portion of the limb supported on the reinforced bottom of the bag, and means for tightening the upper portion of the bag about the natural body portion of the wearer above the artificial limb enclosed within the bag, said means including a drawstring for gathering and tying the upper portion of the bag, and an outer band of elastic material to encircle and bind the gathered and tied upper portion of the bag to the adjacent body portion of the wearer.

4. The herein described artificial limb protector, comprising a waterproof bag-like body of substantially the same transverse dimensions throughout the length thereof and having a flat reinforced bottom, the proportions of the bag being sufficient to receive freely therein the foot portion of the limb and to be readily drawn up over the upper leg portions of the limb, an encircling band to retain the adjacent portion of the bag gathered about the ankle portion of the limb, a drawstring provision for gathering and tightening the upper end portion of the bag about the adjacent natural body portion of the wearer next above the uppermost portion of the artificial limb, and an elastic retaining and sealing band of substantial width to encircle the upper end portion of the applied bag and marginally directly engaging the adjacent body portion of the wearer.

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