J. M. ROCHE.

PUTTEE.

APPLICATION FILED FEB. 5, 1918.

1,322,202. Patented Nov. 18, 1919.

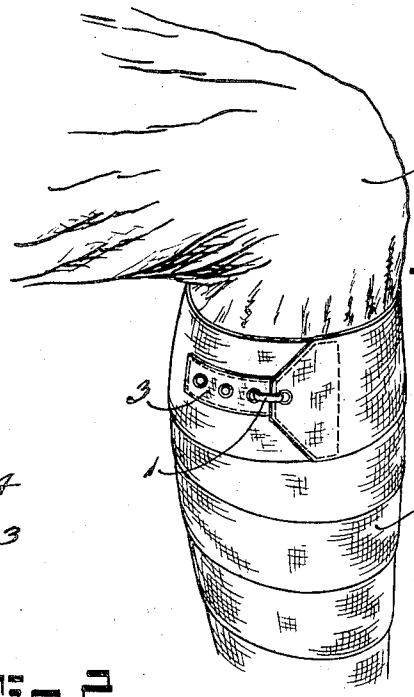


Fig. 1.

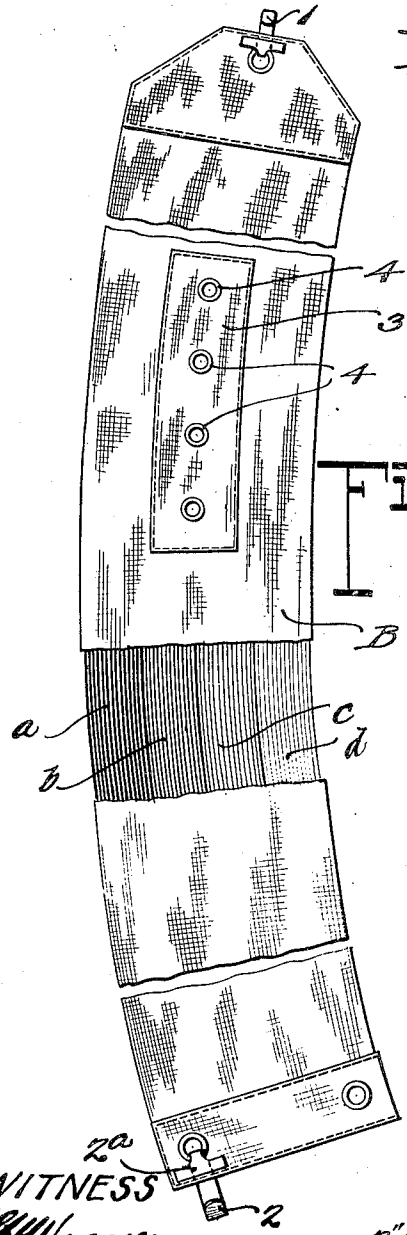


Fig. 2.

Fig. 3.

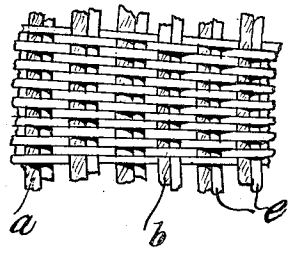
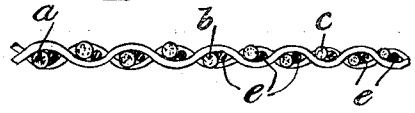


Fig. 4.



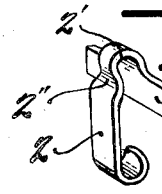


Fig. 5.

WITNESS
G. H. Wagner.

INVENTOR
John M. Roche
BY Robert Cobb
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN M. ROCHE, OF NEW YORK, N. Y.

PUTTEE.

1,322,202. Specification of Letters Patent. Patented Nov. 18, 1919.

Application filed February 5, 1918. Serial No. 215,511.

To all whom it may concern:

Be it known that I, JOHN M. ROCHE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Puttees, of which the following is a specification.

This invention consists of an improved legging or puttee of the spiral type usually made of cloth fabric material, and which is coming into almost universal use for military and other purposes. The puttee of the invention while particularly designed as a leg wrapping, embodies features by which the construction thereof is adaptable for use for bandages or wrappings of other kinds.

It is known that the ideal spiral puttee or legging is one which is made curved longitudinally thereof so that one edge of the wrapping is shorter than the other, whereby when the puttee is applied to the leg as customary it may be wrapped so as to conform with and fit snugly about the limb notwithstanding the gradual upward increase in thickness or diameter, so to speak, of the calf of the leg.

So far as I am aware, those spiral puttees heretofore proposed of curved form have been made by cutting fabric or cloth upon a curve, an expedient the undesirability and impracticability of which are self-evident having in view the factors of wastage of material, inability to obtain selvage edges for the puttee, and inequality in lengths of the longitudinal threads, etc.

Another method pursued in forming curved puttees of the class of this invention is to form the puttee of proper length and width from a straight piece of material and thereafter by wrapping the article after the manner of use about a form tapering toward one end, subject the material to the action of steam and by shrinkage and distention of the threads of the material cause these threads to be set so that the material takes the shape of the form and as an incident thereto becomes curved to conform with the tapering of the leg part on which it is to be used. The above process is not only a time consuming, difficult and expensive one, but additionally its effectiveness is based upon the use of a cloth of such a nature as to be susceptible of distortion of its dimensions by the action of the steam or moisture and drying, wherefore when in practical use if subjected to ordinary conditions of wear it is bound to become misshapen and ultimately non-conformative respecting the leg shape through its inherent qualities of shrinkage and expansion.

With the foregoing constructions, processes and articles in view, the primary object of my invention has been to devise a process of making a spiral puttee not possessing the disadvantages of the known processes and articles, an article which may be more economically manufactured and which in addition to having the ideal curved form possesses especial water repellent qualities, elasticity in a longitudinal direction, and ease of adjustment and cleanliness not heretofore attained in this art to my knowledge.

In the carrying out of my invention, I employ a process by which my puttee or bandage may be woven and its curved shape produced as an incident to the weaving operation. Likewise I employ a special form and relative arrangement of threads from which my woven puttee is made, the action of which in the completed article, whether combined with elastic threads or not, tends to produce unusual qualities in my article as regards its water repelling action.

The process of my invention and the article of manufacture resulting therefrom will be clearly understood on reference to the aftergoing detailed description in connection with the accompanying fragmentary portion of the article of manufacture itself, and the drawings hereto annexed, in which—

Figure 1 is a broken view showing the knee and calf portion of a leg and illustrating my puttee applied thereto;

Fig. 2 is a top plan view intermediately broken away, of the puttee laid out flat to illustrate its curved form, a portion of the view being also broken away to illustrate in a somewhat diagrammatic manner the various series of threads of increasing thicknesses or diameters;

Fig. 3 is an enlarged and somewhat exaggerated fragmentary view bringing out more clearly the arrangement of warp and weft threads and the elastic longitudinal threads of the fabric of my puttee;

Fig. 4 is an enlarged and exaggerated cross sectional view; and

Fig. 5 is a detail perspective view of the form of hook which I employ at the ends of my puttee.

In the production of the puttee of this invention I have had recourse to the simple

expedient of weaving the fabric of which the puttee is composed so that the warp or longitudinal threads of the article increase in diameter from one edge of the puttee to the other edge, the result being that the first mentioned edge is shortened somewhat compared with the outer edge, the lengthening being gradual and producing a long gradual curve lengthwise of the article of manufacture.

In the drawings, A denotes the limb depicted as having my puttee B applied thereto, the upper portion of the puttee alone being shown. The mode of application of the article to the leg is that of common usage and needs no description. It suffices to state that my puttee throughout its length is composed of an elastic fabric expansible elastically lengthwise thereof. At its upper end the puttee has a hook 1 engageable in one of a series of eyelets 4 applied to the upper portion of the puttee and directly passing through a piece of reinforcement 3 stitched or otherwise attached to the puttee and rendering inelastic the portion of the puttee directly carrying the same. At its lower end the legging likewise has a hook 2 to engage in the eyelet of a shoe about the upper of which the puttee is wrapped several times when applied.

As seen best in Fig. 2, I prefer to use approximately four series more or less of warp threads, these series being designated *a*, *b*, *c*, *d*, and each series from the outer edge of the puttee, beginning with the series *a*, being composed of threads of gradually decreased diameter as compared with the next series. Thus we have the fabric in cross section, as seen in Fig. 4, tapering so to speak or decreasing in thickness from its outer edge to its inner edge. The obvious resultant effect of the use of the warp threads of varying diameters as above set forth is to produce the desired shortening of one edge of the puttee or comparative elongation, considering its other edge, whereby the adaptability of the article to the conformation of the leg or other part to which it may be applied is effected, so that at all points in the imaginary spiral area occupied by the puttee, there may exist the desirable and required equal pressure of the article about the limb. Where the puttee is made straight and wrapped with increasing tightness about the leg to secure fit or snugness of application, the known results are constriction of the veins of the limbs on a spiral line coincident with the upper edge of the puttee and injurious results of a self-evident nature are a frequent occurrence.

These are avoided by my article in the use of which a fair amount of snugness of wrapping only is required, the elastic threads E interwoven virtually as a part of the warp threads of my puttee lending that elasticity desirable, and required indeed, to permit the article to flex or give on variation in the position of the muscles of the leg attendant upon kneeling, walking, special strains upon or movements of the leg.

The hooks 1 and 2 are of like form and special form. Each hook has a T head 2^a adjacent to which the metal strip from which the hook is made is notched at opposite sides as at 2′, thereafter being curved and formed with a crimp 2″ and thence extended farther and turned over to make the hook proper. The notch 2′ receives a portion of the eyelet and the crimp 2″ causes the hook to be sprung over and interlocked with the eyelet after a manner avoiding looseness in play of the hook part.

It is to be understood, of course, that my process of making the puttee of this invention is to utilize in the weaving operation the threads of increasing diameters running from one edge of the puttee to the other, speaking in reference to the cross sectional form of the article.

Having thus described my invention, what I claim as new is:

1. As a new article of manufacture, a spiral puttee comprised of a long flat body comprised of warp threads of diameters varying from one edge to the other so that the body is caused to take a longitudinally curved form, adapted to adjust itself snugly, without undue pressure, and conform with the shape of the limb, when wrapped about the latter in a spiral manner.

2. As a new article of manufacture, a flat woven puttee adapted to be wrapped spirally about a limb and comprising longitudinal elastic and inelastic threads of diameters increasing from one edge to the other, whereby to produce longitudinal curvature of the puttee, adapted to adjust itself snugly, without undue pressure, and conform with the shape of the limb, when wrapped about the latter.

In testimony whereof I affix my signature.

JOHN M. ROCHE.