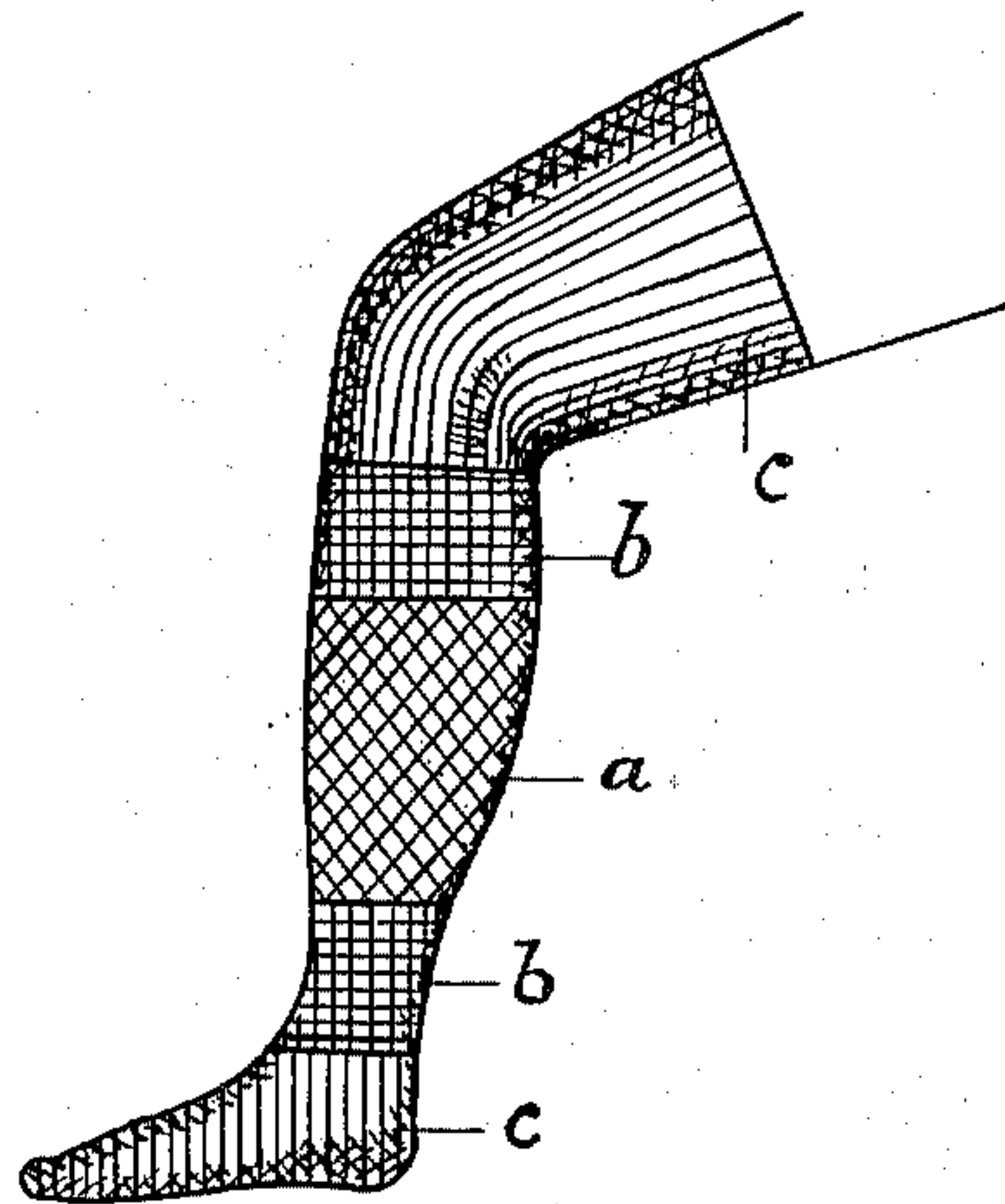


W. J. TEUFEL.  
COMPRESSIVE HOSE.  
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Patented Aug. 16, 1910.



Witnesses  
*E. H. Bond*  
*A. W. Selander.*

Inventor  
*W. J. Teufel*  
by *F. Dittmar*  
Attorney



# UNITED STATES PATENT OFFICE.

WILHELM JULIUS TEUFEL, OF STUTTGART, GERMANY.

## COMPRESSIVE HOSE.

967,585.

Specification of Letters Patent.

Patented Aug. 16, 1910.

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*To all whom it may concern:*

Be it known that I, WILHELM JULIUS TEUFEL, a subject of the Emperor of Germany, residing at Stuttgart, Germany, have  
5 invented certain new and useful Improvements in Compressive Hose, of which the following is a full, clear, and exact specification.

This invention relates to hose exercising  
10 at different places as desired a different elastic pressure upon foot and limb. This result is obtained by using at the places in question in the hose more or less elastic rubber threads or by inserting the rubber  
15 threads farther apart from each other at places where only a slight compressive action is desired.

At places upon the limb or foot where no compressive action is required, the rubber  
20 thread can also be replaced by any kind of elastic worsted or woven material etc. By such an arrangement it is possible to prevent the edges of the compressive hose from cutting into the soft flesh of the patient  
25 and to cause disturbances in the blood circulation and that sore or bruised places and healthy parts of the limb or foot may be subjected to different pressures so that  
30 any bad effects resulting from subjecting these places, differing in their power of resistance, to an equal pressure, which would cause interruptions in the circulation of the blood, are prevented.

Heretofore only one kind of rubber  
35 threads has been used in the manufacture of compressive hose, so that every part of the body surrounded by the hose was subjected to an equal elastic pressure.

In practice it has been shown, that by the  
40 use of such a compressive hose, made of threads of equal strength the following undesirable results were produced:

1. The edges of the compressive hose being of the same material as the body of the  
45 hose, cut into the flesh of the patient which caused interruptions of the circulation of the blood which should especially be avoided in the treatment of varicose limbs. Furthermore it caused the cutting of the edge of the  
50 hose into the flesh with consequent sore spots, and besides was very trying to the patient. These inconveniences are done away with by the arrangement of suitable  
55 broad bands at the upper and lower edges of the hose through which the compressive action of the hose is considerably weakened

or wholly neutralized and by the intermission of rubber threads of lighter grade toward the ends of the hose so as to prevent a cutting of the edges into the flesh of the  
60 limb or foot and the complications caused thereby.

2. The sore as well as the healthy parts of the foot or limb were heretofore subjected to an equal degree of pressure which is  
65 entirely impracticable as the healthy parts in which the muscles, the flesh and the blood vessels are in good condition offer a greater resistance to the pressure of the rubber hose than the diseased parts with their soft  
70 flabby muscles and flesh in which the blood vessels are already enlarged and show a knotty growth. If for instance the calf of a limb is diseased and the part beneath  
75 thereof is healthy and both receive the same pressure a more or less strong interruption in the blood circulation will be caused in the part adjacent to the healthy part, the  
80 pressure of which will react upon the diseased calf of the limb so that the pressure in the blood vessels of this part will be increased and more harm than good will be  
85 done. It is therefore entirely wrong to subject the diseased and the healthy parts to an equal pressure and it is evident that the healthy parts should be subjected to less  
90 pressure than the diseased. To meet this requirement the compressive hose must be made so as to exercise a stronger pressure upon the diseased parts than upon the  
95 healthy parts of the limb or foot.

A compressive hose answering this purpose is manufactured by inserting at the  
places where a slight elastic pressure is required, rubber threads of greater elasticity  
95 or, if rubber threads of equal elasticity are used, by inserting the same at larger intervals. In special cases the rubber threads may at places also be entirely dispensed with  
100 and be substituted by suitable elastic worsted or woven material of sufficient strength.

Besides the above enumerated advantages the hose forming the object of the present  
105 invention can be manufactured in any suitable length and color so that it can not be distinguished from any ordinary hose. Furthermore the wearing of two pairs of  
110 stockings, the rubber hose and the ordinary stocking and the inconveniences caused thereby are avoided which is of special advantage for corpulent or very sick persons,



and above all the costs of manufacture are considerably reduced, as a compressive hose according to the present invention may be manufactured much cheaper than a hose made entirely of expensive rubber.

Compressive hose reaching above the knee as manufactured heretofore show the disadvantage that besides the difficulty in putting on and removing them they easily form folds or creases in the bend of the knee especially when the limb is frequently bent as in sitting position, as the rubber hose is naturally thicker at the bend than at other parts and this is very often the cause of a very disagreeable soreness at the said bend. This disadvantage is successfully overcome by the object of the present invention in making the knee part of the compressive hose of rubber threads of lighter grade or even only of elastic worsted or woven threads.

The new compressive hose exerts a pressure upon the diseased part only and not upon the other parts and the rubber threads may altogether be dispensed with and therefore the healthy parts are not unnecessarily heated and the entire limb is influenced in a wholesome manner.

In the accompanying drawings forming part of this specification: The drawing represents a combination hose of rubber and worsted or woven material.

The drawing shows a combination hose in which a compressive hose is combined with

an ordinary hose. The calf of the leg is considered to be the diseased part and correspondingly the hose *a* at this part is made of rubber threads of ordinary grade, above and below said hose *a* strips *b* are provided made of rubber threads of lighter grade which may be called transition-strips to which at the lower end is attached the foot piece *c* of ordinary worsted material and in the same way the top part of ordinary hose is attached to the edge of the upper transition-strip. The strips *b* may also be omitted and the arrangement of the parts of different compressive material may be varied at will according to occasion as the necessity may require.

Having thus described my invention what I claim is:

Seamless compressive hose embodying in a continuously woven tubular single element a foot piece of worsted material, a band of rubber threads at the calf portion, to exercise increased pressure on the diseased part, a band of lighter threads of rubber between the same and the foot piece, a band of like threads above the calf piece and a portion of worsted material above the last named band.

In testimony whereof I affix my signature.

WILHELM JULIUS TEUFEL.

In the presence of—

ALBERT BURHL,

ADOLF SCHMITT-ROUETT.