Jan. 9, 1923. 1,441,318

E. WEINHEIM.

SUBSTITUTE LEATHER FOR SHOE VAMPS.

FILED NOV. 26, 1919.

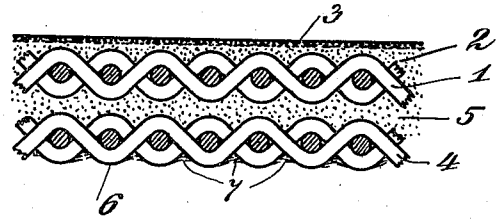


Fig. 1.

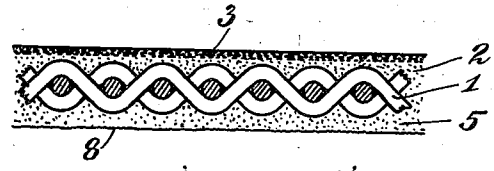


Fig. 2.

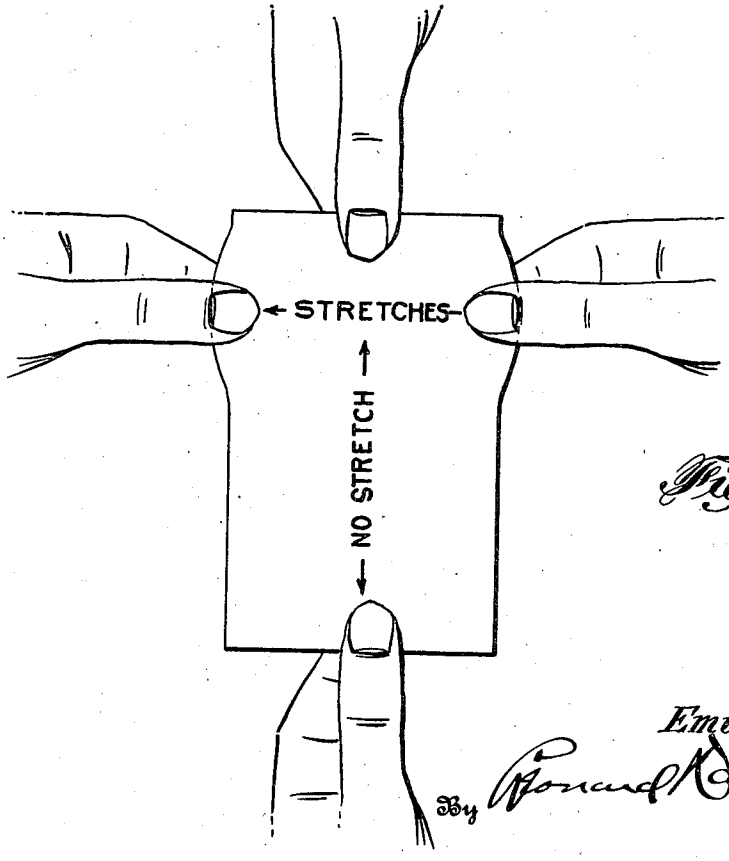


Fig. 3.

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UNITED STATES PATENT OFFICE.

EMIL WEINHEIM, OF NEW YORK, N. Y.

SUBSTITUTE LEATHER FOR SHOE VAMPS.

Application filed November 26, 1919. Serial No. 340,762.

To all whom it may concern:

Be it known that I, EMIL WEINHEIM, a citizen of the United States, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Substitute Leather for Shoe Vamps, set forth in the following specification.

In the commercial use of the multi-stretchable leather substitute described in my Patent No. 1,242,622, granted October 9, 1917, it has developed that, in the manufacture of certain articles such particularly as shoe vamps and gloves, it is desirable to employ a substitute leather which is substantially inextensible in one direction, and which, at the same time, is substantially stretchable in a direction at right angles. For example, in forming a vamp over a shoe last the vamp material must be stretchable in order to conform to the shape of the last, whereas in the finished shoe there should be no lengthwise stretch in the vamp. Likewise, in the manufacture of gloves the length of the fingers should be fixed and to this end the material of which the glove is constructed should have no stretch in the direction of the length of the fingers, although it should be yielding around the fingers.

It is an object of the present invention to produce a leather substitute especially suitable for the manufacture of such articles as shoe vamps and gloves. In other words, it is an object of the invention to produce a satisfactory leather substitute which shall be substantially inextensible in one direction, while a substantial stretch in a direction at right angles is provided.

Prior to my inventions the body fabric employed in the manufacture of substitute leather has been a woven fabric having little or no stretch both in the direction of its length and breadth. In carrying out the object of my present invention I have discovered that there may be woven on a Travers loom a textile fabric which is substantially inextensible in the direction of its length or warp, but which has a substantial stretch in the direction of the weft or filler. I propose the employment of a woven fabric made in such machine but preferably woven in the machine with considerable extra tension placed upon the warp threads during the process of weaving.

A further object of this invention, in addition to merely the desired relationing of inextensibility and stretch, is to form a single substitute fabric which will provide within itself a leather substitute outer and a combined lining so that, in the formation of shoe uppers, one cutting and one forming over the last completes the shoe both as to lining and outer.

The above may better be understood by reference to the accompanying claims and the following specification, which sets forth an illustrative embodiment of the invention in connection with a diagrammatic showing in the accompanying drawings, which form a part hereof. In the drawings, like characters designating corresponding parts in the several figures,

Fig. 1 is a cross section through a sample of the preferred embodiment of my substitute leather;

Fig. 2 is a similar cross section through a modification from which the lining is omitted; and

Fig. 3 is a diagram illustrating the stretching and non-stretching qualities of the finished fabric.

I preferably employ a textile fabric of the type fabricated on a Travers loom and technically woven goods having a complex weave, a sample of which, for illustrative purposes, is attached hereto and made a part hereof, although I desire it to be understood that, for the body fabric of my substitute leather, I contemplate the employment of any textile fabric which is substantially stretchable in one direction and substantially inextensible in the direction at right angles. Such a body fabric is indicated diagrammatically in the drawings by 1. This body fabric is treated with any suitable leatherizing dope to form a surface filling 2 and finish coating 3. Any suitable dope and any suitable method of application such as described in my aforementioned patent are contemplated. However, I prefer to employ the dope and method of application described in my patent for method and apparatus for manufacturing smoothly coated textile fabrics, granted August 19, 1919, No. 1,313,655.

In making my preferred embodiment, if the method recited in my patent for method of completely impregnating textile fabric with filling material, granted October 15, 1918, No. 1,281,728, is employed, a textile

fabric lining 4 similar to and extending in the same direction as the textile fabric 1 relatively to stretchability is rolled against the leatherfying dope body 5 before the complete setting of the said body so as to adhere strongly thereto with the leatherfying dope 5 penetrating the interstices of the textile fabric 4 but not extending through to the lining surface 6, which should be left unimpregnated and preferably carded to reduce friction when employed for lining purposes. The carding produces anti-friction fibers 7.

If the method of impregnating recited in my Patent 1,313,655 is employed I prefer to unite the lining 4 with the body 1 by a layer of a stretchable, adhesive material, preferably resilient, which may be a thin layer of rubber dissolved in a volatile solvent.

In Fig. 2 is illustrated my leather substitute without a lining in which the unfinished surface 8 is smoothed off in the process of manufacture so that the completed fabric is substantially uniform in thickness.

I further desire it to be understood that I contemplate, in addition to the usual oxidizable oil dopes and pyroxyline dopes, the employment of any of the well known rubber compounds for a body filling and finish coating for my fabric.

The diagram of Fig. 3 is intended to emphasize the stretching and non-stretching qualities of my finished fabric and applies both to the embodiment of Fig. 1 and the embodiment of Fig. 2, although it is to be understood that there is nothing in my invention which limits the non-stretchability or inextensibility to the direction of length, while the stretchability is limited to the direction of breadth.

What I claim and desire to secure by United States Letters Patent is:—

1. An artificial substitute for leather of the type suitable for such articles as shoe vamps and gloves comprising a textile fabric body which is substantially inextensible in one direction and substantially stretchable in the direction at right angles, said body carrying a filling of stretchable leatherizing dope and having a finishing dope surface of a character different from said body filling, but stretchable co-extensively with said body, whereby the finished artificial substitute is workably stretchable in one direction and substantially inextensible in the direction at right angles.

2. An artificial substitute for leather of the type suitable for such articles as shoe vamps and gloves comprising a textile fabric body which is substantially inextensible in one direction and substantially stretchable in the direction at right angles, said body carrying a surface coating and filling of stretchable leatherizing dope, whereby the finished artificial substitute is workably stretchable in one direction and substantially inextensible in the direction at right angles; and a lining of textile fabric similar to said body and united to said body by a layer of stretchable adhesive in such position that the stretch of said lining is in substantially the same direction as the stretch of said body.

In testimony whereof I have signed my name to this specification, this 3d day of November, 1919.

EMIL WEINHEIM.