

# UNITED STATES PATENT OFFICE.

JOSEPH PHILIPPS AND PIERRE DE TROUSSURES, OF PARIS, FRANCE.

MANUFACTURE OF COMPOUND FABRICS FROM CORK AND TEXTILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 762,492, dated June 14, 1904.

Application filed August 19, 1903. Serial No. 170,064. (No specimens.)

*To all whom it may concern:*

Be it known that we, JOSEPH PHILIPPS and PIERRE DE TROUSSURES, citizens of the Republic of France, residing at Paris, France, have invented certain new and useful Improvements in Manufacture of Compound Fabrics from Cork and Textile Fabrics, of which the following is a specification.

It has already been proposed to associate cork in very thin sheets with textile fabrics to form cork fabrics capable of various applications. The means hitherto employed for this purpose have always comprised the use of adhesive material for uniting the textile fabric to the cork. This involved a disadvantage, because this paste, glue, or adhesive material was liable to lose its qualities, to soften under the action of moisture, to become brittle under the action of heat, and the cork and textile fabric became separated in places. Moreover, although the cork presented a certain amount of suppleness, especially when very thin, the cork fabrics always possess a certain stiffness, as much in consequence of the adhesive material interposed as by reason of the gummy and resinous matters contained in the cork.

The improved process which we have devised has been designed expressly with a view to dispense entirely with the use of paste, glue, or adhesive material for uniting the textile fabric and the cork and of removing from the cork all the resinous and gummy substances which fill the pores of the ligneous tissue. We obtain the result sought by subjecting the thin sheet of cork to a special preparation, which we will proceed to describe.

The cork having been cut into a very thin sheet is subjected to a prolonged immersion in a solution composed as follows: spirit of turpentine, ninety parts; alcohol, eight parts; sulfuric ether, two parts; total, one hundred. After removing the cork from this bath it is placed in a hot-air stove, so that the special liquids with which it is impregnated may penetrate it very intimately and dissolve the resinous and gummy matters with which the ligneous material is impregnated. The cork thus obtained will have acquired a greater homogeneity, since it is deprived of the for-

eign substances it previously contained. It is more supple, because it has lost the gums and resins which rendered it brittle and friable. Further, microscopical cavities are formed on its surface and in its substance which were previously filled by the substances eliminated by the treatment above explained and which will permit of a more intimate penetration of the fibers or filaments of the textile fabric which has to be associated with the cork. Also it is in consequence of this preparatory treatment of the sheet of cork that the said sheet of cork and the fabric can be united intimately together without necessity for employing any glue, paste, or adhesive material.

The second part of the process, which has for object to effect the union of the cork and the fabric, consists in submitting the double thickness of cork and fabric to a powerful pressure, this giving an absolutely homogeneous product, the two interior surfaces of the cork and fabric being absolutely united together as if there were penetration of certain elements of one of the surfaces into the pores of the other. The strong pressure which it is necessary to exert to produce this intimate junction of the cork and fabric can be obtained on a rolling mill or machine by passing the double thickness between the rolls or cylinders thereof. A hydraulic press may likewise be employed for the purpose, or it may be attained by hammering.

This cork fabric possesses remarkable suppleness. The cork is neither brittle nor friable. Thus it will be seen that these cork fabrics are capable of numerous applications and that they can serve in particular for the manufacture of wearing-apparel, advantageously replacing rubber-coated or water-proofed materials. They can be employed in the manufacture of impermeable or water-proof wearing-apparel, foot-gear, and dress-shields. The cork fabric can also be used in the hat manufacture, sheath and case making, morocco and fancy and imitation leather trades, saddlery, the manufacture of printed or embossed furniture-coverings or wall-coverings in imitation of Walton, Lincrusta, Cordovan, or Venetian leather.

The insulating properties of the cork per-



mit of advantageously applying these flexible cork fabrics in spirally-wound bands for inclosing electric wires and cables. Pneumatic tires for wheels, transmission-belts, &c., may also be manufactured with these materials by making them of suitable thicknesses.

We claim—

1. In the manufacture of a cork fabric, the process which consists in forming the cork into thin sheets, immersing the same in a mixture of turpentine, ether and alcohol, then removing the cork from said mixture and heating the cork, whereby to separate the gummy and resinous substances from the cork, to render the latter more supple, and less brittle, and to facilitate the intimate penetration of a textile fabric into the pores of the cork, applying such sheets to the surface of such fabric without intermediate adhesive, and uniting the two by pressing them together under heavy pressure.

2. The process of manufacturing cork fabrics which consists in dissolving out the gummy and resinous substances from the cork, and then uniting the cork in thin sheets to a fabric by pressing the two together under heavy pressure.

3. The process of manufacturing cork fabrics, which consists in removing the gummy and resinous substances from the cork, and then uniting the cork in thin sheets to a fabric by pressing the two together under heavy pressure.

4. In the manufacture of a cork fabric, the process which consists in forming the cork into thin sheets, dissolving out the gummy

and resinous substances therefrom, whereby to render the cork more supple and less brittle, and to facilitate the intimate penetration of a textile fabric into the pores thereof, and subsequently uniting such sheets to such fabric.

5. In the manufacture of a cork fabric, the process which consists in forming the cork into thin sheets, immersing the same in a mixture of turpentine, ether and alcohol, then removing the cork from said mixture, and heating the cork, whereby to separate the gummy and resinous substances from the cork, to render the latter more supple and less brittle, and to facilitate the intimate penetration of a textile fabric into the pores of the cork, and subsequently uniting such sheets to such fabric.

6. A new product comprising a thin sheet of cork and a sheet of fabric, the cork penetrating into the fabric and the two being firmly united together without an intermediate adhesive.

7. A new product comprising a thin sheet of cork with its gummy and resinous substances removed, and a sheet of fabric, the cork penetrating into the fabric and the two being firmly united together without intermediate adhesive.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JOSEPH PHILIPPS.  
PIERRE DE TROUSSURES.

Witnesses:

MARCEL ARMENGAUD, Jeune,  
GEORGE E. LIGHT.