

# UNITED STATES PATENT OFFICE.

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## ARTIFICIAL LEATHER AND PROCESS OF MAKING THE SAME.

No. 837,700.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, STEPHEN MEERS, a citizen of the United States, residing at New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Artificial Leather and Processes of Making the Same, of which the following is a specification.

The object of my invention is to produce artificial or imitation leather possessing substantially all the physical characteristics of natural leather. Many attempts have been made heretofore to produce such a product, and various substitutes for leather are now found on the market; but, so far as I am aware, these products are open to one or more objections—such as being inflammable, non-moisture-proof, easily affected by changes in temperature, or have a tendency to lose flexibility or pliability after a comparatively brief period of use. My new product is devoid of these and many other defects inherent in the artificial leathers now on the market and is more durable than natural leather.

In the manufacture of my new product I employ, preferably and generally, a single layer of fabric as the foundation thereof, apply thereto a basic coating which is water and oil repellent, and superimpose on said basic coating one or more other coatings. The process followed in the production of this novel product is also new.

In practically carrying out my invention I take any suitable sheet material—such as drill, sateen, canvas, duck, or sheeting—and apply thereto a foundation layer or coating of waterproof material, such as a solution of nitrocellulose (soluble cotton) in a suitable solvent, such as amyl acetate, the said nitrocellulose solution being free, or substantially free from oil. I may add to this basic coating, and preferably do, any suitable pigment ground in castor-oil. About two parts of any suitable pigment may be ground with one part of oil, and to each gallon of the nitrocellulose solution I add about one pound of the said mixture of oil and pigment. This basic coating, being of an oil and water repellent character, protects the fabric from the oil subsequently used as an ingredient in a composition employed as a second coating. This is an important feature of my invention, since it enables me to produce an artificial leather product the fabric forming the foundation of which is protected by a water and oil proof

coating substantially free from oil, whereas in the imitation leathers as now made from a single layer of fabric the said fabric is more or less saturated with oil, a particularly disadvantageous characteristic.

In the processes now employed to obtain an artificial leather wherein the backing or base of cloth is free or substantially free from oil it is customary to use two layers of fabric united by any suitable adhesive or cement, the layer of fabric on which the coatings are applied and the cement intermediate the fabrics thereby protecting the basic layer of fabric. The economy and other advantages of the artificial leather produced by my process over the product just described are very apparent.

Though generally unnecessary, I may, if desired, make two or more applications of the nitrocellulose solution to the fabric to form the said basic layer or coating. If acetone-oil or fusel-oil is employed as an ingredient in the preparation of the nitrocellulose solution, then it is unnecessary to use oil, as stated, with the pigment, though it is generally desirable and advantageous to do so. The single-coated product, prepared as described, is now calendered by passing it through hot rolls, thereby giving a smooth polished foundation coating without in any way deteriorating the fabric. This operation dispenses with the step of rubbing down with pumice, so commonly employed. If found desirable, however, I may rub down, as usual. After the application of the basic coating, as described, I apply thereto a second coating of an entirely different character and consisting of a suitable drying-oil, such as linseed-oil, to which I may add pigments, and also, if desired, a small proportion of a suitable solution of raw or vulcanized rubber for the purpose of increasing the flexibility or pliability of such coating. The presence of the pigment in this second coating renders such coating practically non-inflammable. Furthermore, this second coating is much less expensive than a pyroxylin solution, thereby contributing to the economy of the process. After this second coating has become dry the leather surface thus produced may be embossed or "pebbled" to imitate grain-leather, after which it may or may not be varnished. If it is desired to produce a smooth patent-leather surface, the graining is omitted and the product varnished by a suitable patent-leather varnish, such as a mixture of a dry-



ing-oil and varnish or plain oxidized linseed-oil. The artificial leather thus produced is not detrimentally affected by changes in temperature, as is ordinary patent-leather, nor is it affected by hot or cold water. Further, it is flexible and pliable, non-cracking, non-absorbative, practically non-inflammable, and is adapted as a substitute for leather for nearly all purposes. It will be apparent also that the product can be expeditiously and economically manufactured.

While I have specifically referred to a fabric as the basic material to which I apply the coatings described, it will be obvious that other material may also be used, and, further, that the two coatings produced as described may be utilized independently of the fabric or basic material. Furthermore, it will be apparent that the process may be varied in details, both as to the ingredients used and the procedure described, without departing from or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, an artificial leather composed of a layer of material in sheet form, having applied thereto a foundation coating of waterproof material substantially free from oil, and on top of said foundation coating, a second coating of material composed of a drying-oil and a suitable pigment.

2. As a new article of manufacture, an artificial leather composed of a layer of material in sheet form, having applied thereto a foundation coating resulting from the application thereto of a solution of soluble cotton or nitrocellulose, and having applied to said foundation coating, a second coating of a drying-oil and a pigment.

3. As a new article of manufacture, an artificial leather composed of a layer of material in sheet form, having applied thereto a calendered coating of pyroxylin on which is superimposed a second coating containing oxidized linseed-oil.

4. As a new article of manufacture, an artificial leather composed of a layer of material in sheet form, having applied thereto a waterproof composition substantially free from oil, a coating of a drying-oil and a pigment superimposed thereon, and a third coating of a suitable varnish.

5. The herein-described artificial leather composed of a single layer of fabric substan-

tially free from oil, a coating formed from a nitrocellulose solution substantially free from oil thereon, and an oxidized oil coating superimposed on the nitrocellulose coating.

6. The herein-described product composed of a base of fabric and having two coatings on one side thereof, the first of which is substantially free from oil and is water and oil proof, said product being flexible, pliable, and substantially non-inflammable.

7. As a new article of manufacture, an artificial leather composed of a layer of material in sheet form, having applied thereto a waterproof composition, a coating of a drying-oil, and a pigment superimposed thereon, and a third coating of a suitable varnish forming patent-leather dressing for the resulting product.

8. The process of producing artificial leather which consists in applying to a fabric a basic coating of a waterproof composition substantially free from oil, and then applying to said basic coating a coating consisting of a mixture of an oxidizable oil and a pigment.

9. The process of producing artificial leather which consists in applying to a fabric a basic coating of a waterproof composition substantially free from oil, calendering said coating, and then applying to said basic coating a second coating consisting of a mixture of an oxidizable oil and a pigment.

10. The process of producing artificial leather which consists in applying to a fabric a single layer of basic coating of soluble cotton, and superimposing thereon a second coating of oxidized linseed-oil containing a pigment.

11. The process of producing artificial leather which consists in applying to a fabric, a basic coating of soluble cotton, calendering the same, and then applying thereto a second coating of a drying-oil containing a pigment.

12. The process of producing artificial patent-leather which consists in applying to a fabric a basic coating of waterproof material, polishing and smoothing the same, applying thereto a mixture containing oxidized oil, and then applying a coating of varnish to give a patent-leather finish to the resulting leather surface.

In testimony whereof I have subscribed my name to this specification in the presence of two subscribing witnesses.

STEPHEN MEERS.

Witnesses:

JAS. H. GRIFFIN,  
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