UNIVERSAL STATES PATENT OFFICE.

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MANUFACTURE AND WATERPROOFING OF LEATHER AND LEATHER CLOTH.


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To all whom it may concern:

Be it known that I, PETER CASTLE, of Bebington, in the county of Chester, resident of England, have invented certain new and useful Improvements in or Relating to the Manufacture and Waterproofing of Leather and Leather Cloths, of which the following is a specification.

In the manufacture of leather and leather cloths for various manufactures, such as beltings, the process has hitherto been very slow and expensive, it being necessary to repeatedly coat and dry the said cloths with boiled linseed-oil or nitrate of products. The beltings or cloths are first coated with a preparation in well-known machines. The cloths, which are in various lengths, are then removed to steam-heated drying-warehouses, where they are allowed to hang for varying lengths of time, according to the nature of the coating applied to them or the quantity and thickness of the fabric coated. When dry, the cloth is again sent to the factory and subjected to another coating on the coating-machine and the drying process again repeated as above mentioned. In order to thoroughly coat the fabric or cloth, it has hitherto been necessary to repeat this operation five or six or even as many as eight or nine times, the carrying of the cloth between the factory and the drying-chambers being done by hand. When the drying has been completed, the cloths are next taken to embossing-machines and finished for the market. It will thus be seen that this method is a very slow and expensive one, and in addition the boiled linseed-oil (which is largely used) is also very expensive.

Now this invention consists in manufacturing belt, waterproof cloth, waterproof leather, and textile fabrics generally in such a manner that the coating and drying are completed and the fabrics made thoroughly waterproof at one single operation.

The invention consists, essentially, in combining the flour of the locust-bean kernels with the nitrated product with or without other ingredients for waterproofing and strengthening other fabrics, whereby the gum contained in the said flour is set free and enables me to apply a sufficient quantity of the compound onto the cloth at a single coating, and no matter what the thickness of the coating is the material is thoroughly waterproof.

In carrying out my invention in the formation, for instance, of leather cloths and book-cloths resembling mackintosh, as much as they are thoroughly waterproof, I take flour of the kernels of the locust-bean, two pounds; color, one pound; nitrated cotton, one gallon; ether, one pound; castor-oil, five ounces, and if coloring be required sufficient coloring-matter to produce the shade desired. The ingredients are mixed into a homogeneous paste, which is then applied to the cloth either by hand or the ordinary machinery used for similar purposes. The fabric thus treated is thoroughly waterproof and is found to be of great strength and durability.

The invention is applicable for strengthening and waterproofing all kinds of cloths, such as bookbinders' cloths, hospital cloths, military and other tent cloths, covering for roller-spindles, and even for coverings for electric wires and the like, and also for belts, and is also applicable for wall-papers.

In thus describing my invention I would leave it advisable that the use of castor-oil or other lubricating-oil is not a necessity, but is strongly advisable when the fabric has to be made very pliable; secondly, the coloring-matter is also not a necessity, but is simply supplied to suit the taste or to vary the normal shade. The nitrated cellulose is one of the lowest grade and non-explosive and the fabric will not blaze when set fire to, but only smolder. The quantity of the various ingredients can also be varied very considerably without departing from my invention.

The flour of the locust-bean kernel, while when employed by itself is soluble in water, when it is once dried and mixed with other materials such as described it becomes practically insoluble.

It will be seen that the essential differences between my invention and the cumbersome, protracted, and expensive processes at present in use are that I can complete the manufacture of waterproof articles at one single operation instead of eight or nine, as at present employed: also, that the cost of the materials used in my process is less than half that of the present materials: further, that the cloth manufactured according to my invention is absolutely waterproof and can pass from the coating-machine to the embossing-machine in the same place in the factor; without the intervention of drying-chambers and without having to be carried to and fro and subjected.

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to a special steam-drying apparatus. The article manufactured by my process is also very much more pliable and softer and will not blaze when set fire to or crack, whereas the cloths at present manufactured crack very easily and are liable to burn rather rapidly.

As regards the particular form of feather cloth known to the trade as "book-cloth" it is of special importance that this in many cases should be of thin materials, which are subject to crack or cut when treated with the starchy substances at present in use when they are being embossed. By my process the very thinnest cloth can be perfectly embossed without any cracking or cutting taking place.

I declare that what I claim is—

1. As a new article of manufacture, a fabric consisting of a body rendered waterproof by treatment with a paste containing the flour of the kernels of the locust-bean and oil.

2. As a new article of manufacture, a fabric consisting of a body rendered waterproof by

3. As a new article of manufacture, a fabric consisting of a body rendered waterproof by treatment with a paste containing the flour of the kernels of the locust-bean, oil and coloring-matter.

4. As a new article of manufacture a belt or cloth formed of two or more layers of fibrous matter, having between them a layer containing the flour of the kernel of the locust-bean.

5. As a new article of manufacture a belt or cloth formed of two layers of fibrous matter having between them a layer containing the flour of the kernel of the locust-bean and oil.

In witness whereof I have hereunto signed my name, this 27th day of January, 1904, in the presence of two subscribing witnesses.

P. C. D. CASTLE.

Witnesses:

H. R. SHOBIDGE,

JOHN McLACHLAN.