UNITED STATES PATENT OFFICE.

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PROCESS FOR WATERPROOFING LINEN OR OTHER TEXTILE ARTICLES AND GIVING THEM A PERMANENT GLAZED WASHABLE SURFACE.

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To all whom it may concern:

Be it known that I, ARTHUR ALPHONS ANTONY ZIMMER, a subject of the Emperor of Austria-Hungary, residing at Holloway, London, in the county of London, England, have invented certain new and useful Improvements in Processes for Waterproofing Linen or other Textile Articles and Giving Them a Permanent Glazed Washable Surface, of which the following is a specification.

This invention relates to an improved process for waterproofing linen or other textile articles and giving them a permanent glazed, washable surface, and has for its object to thoroughly impregnate linen collars and other textile articles with a waterproof solution and to give to such articles a film or glaze that can be readily washed, either thoroughly or superficially, without deterioration to such surface, which, furthermore, will not crack or peel even when the article treated is bent or folded.

Processes previously proposed have failed in practice and commercially on account of the processes employed resulting both in the destruction of the linen appearance of the articles, and moreover the surfaces of the articles have been liable to peel off and crack. This is largely due to the fact that the solutions employed, such for instance as collodion cotton in amyl acetate, contain a large percentage of volatile spirit and in practice according to known processes, the spirit soaks through the outer folds of the article, a collar for instance, and becomes absorbed by the inner folds. The collodion surface prevents the ready evaporation of this volatile spirit with the result that such spirit tends to raise the collodion film in its endeavor to escape.

It has in some processes been proposed to first coat the article with a rubber waterproof solution, and this, while preventing the penetration of the volatile spirit, has been found in practice to detract from the linen appearance of the article and moreover prevent the collodion surface becoming sufficiently homogeneous with the linen fabric. In order to obviate these disadvantages, I first starch and iron the article to be treated and then subject the article to such a degree of saturation in a rubber, gutta percha or like waterproof solution, such for instance as a 15% (per centum) solution of stearic acid in alcohol or some other solvent, that the inner fibers and threads of the article become thoroughly impregnated without the formation of a covering skin. The article is then partially dried and when in this partially dry and adhesive condition coated with a solution of nitro-cellulose or its compounds obtained preferably by dissolving celluloid in dichlorhydrin or a mixture of tetrachloroethane and acetone, a small proportion of castor oil and a suitable coloring matter being introduced in some cases.

The strength of the solution I have found satisfactory is that in which the proportion of nitro-cellulose or its compounds is in or about 20% nitro-cellulose to 80% of the solvent.

The article treated in the foregoing manner is passed between suitable rollers or shaping apparatus, such rollers or shaping apparatus being heated to a suitable degree when it will be found that the glazed surface becomes homogeneous with the rubber impregnated article in such a manner that the article does not crack neither is the linen appearance of the article affected. Finally I polish the surface successively with pumice stone powder, talcum, and powdered chalk. As the above treatment does not obscure or alter in any way the original appearance of the article, it is naturally of great importance that a perfectly dressed collar, for example, be had in the first instance.

I claim—

1. The process for treating linen articles, which consists in first starching and ironing the articles to be treated, then subjecting the articles so treated to such a degree of saturation in a suitable waterproofing solution that they become thoroughly impregnated with such solution, then partially drying the articles and while in a partially dried and adhesive condition coating them with a nitrocellulose compound, subjecting the articles to a calendering process, whereby the outer glazed surface becomes homogeneous with the waterproofed surface of the linen, and finally subjecting the articles to a polishing process by treatment with a suitable material.

2. The process for treating linen articles, which consists in first starching and ironing the articles to be treated, then subjecting

the articles so treated to such a degree of saturation in a suitable waterproofing solution that they become thoroughly impregnated with such solution, then partially drying the articles and while in a partially dried and adhesive condition coating them with a nitrocellulose compound dissolved in a suitable solvent, subjecting the articles to a hot calendering process, whereby the outer glazed surface becomes homogeneous with the waterproofed surface of the linen, and finally subjecting the articles to a polishing process by treatment with pumice stone powder, talcum, and powdered chalk successively applied.

3. The process for treating starched linen articles, which consists in first starching and ironing the articles to be treated, then subjecting the articles so treated to such a degree of saturation in a suitable waterproofing solution that they become thoroughly impregnated with such solution, then partially drying the articles and while in a partially dried and adhesive condition applying a coating consisting of celluloid dissolved in a suitable solvent, subjecting the articles to a hot calendering process, whereby the outer glazed surface becomes homogeneous with the waterproofed surface of the linen, and finally subjecting the articles to a polishing process by treatment with a suitable material.

4. The process for treating starched linen articles, consisting in first subjecting such articles to such a degree of saturation in a suitable waterproofing solution that they become thoroughly impregnated with such solution, then partially drying the articles and while in a partially dried and adhesive condition coating them with a surface consisting of a nitrocellulose compound dissolved in a suitable solvent and into which a small proportion of castor-oil and a suitable coloring matter have been introduced, subjecting the articles to a calendering process, whereby the outer glazed surface becomes homogeneous with the waterproofed surface of the linen, and finally subjecting the articles to a polishing process by treatment with a suitable material.

5. The process for treating starched linen articles, consisting in first subjecting such articles to such a degree of saturation in a suitable waterproofing solution that they become thoroughly impregnated with such solution, then partially drying the articles and while in a partially dried and adhesive condition coating them with a surface consisting of celluloid dissolved in a suitable solvent and into which a small proportion of castor-oil and a suitable coloring matter have been introduced, subjecting the articles to a calendering process, whereby the outer glazed surface becomes homogeneous with the waterproofed surface of the linen, and finally subjecting the articles to a polishing process by treatment with pumice stone, talcum, and powdered chalk successively applied.

6. The process for treating starched linen articles, consisting in first subjecting such articles to such a degree of saturation in a rubber solution that they become thoroughly impregnated with such solution, then partially drying the articles and while in a partially dried and adhesive condition coating them with a surface consisting of a nitrocellulose compound dissolved in a suitable solvent and into which a suitable coloring matter has been introduced, subjecting the articles to a calendering process, whereby the outer glazed surface becomes homogeneous with the waterproofed surface of the linen, and finally subjecting the articles to a polishing process with pumice stone powder, talcum, and powdered chalk successively applied.

7. The process for treating starched linen articles, consisting in first subjecting such articles to such a degree of saturation in a rubber solution that they become thoroughly impregnated with such solution, then partially drying the articles and while in a partially dried and adhesive condition coating them with a surface consisting of celluloid dissolved in a mixture of tetrachloroethane and acetone, and finally calendering and polishing said articles.

8. The process for treating starched linen articles, consisting in first subjecting such articles to such a degree of saturation in a rubber solution that they become thoroughly impregnated with such solution, then partially drying the articles and while in a partially dried and adhesive condition coating them with a surface consisting of celluloid dissolved in a mixture of tetrachloroethane and acetone and into which a small proportion of castor-oil and a suitable coloring matter has been introduced, subjecting the articles to a hot calendering process, whereby the outer glazed surface becomes homogeneous with the waterproofed surface of the linen, and finally subjecting the articles to a polishing process by treatment with pumice stone powder, talcum, and powdered chalk successively applied, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

ARTHUR ALPHONS ANTONY ZIMMER.

Witnesses:

H. W. LAYHOW,

R. WESTACOTT.