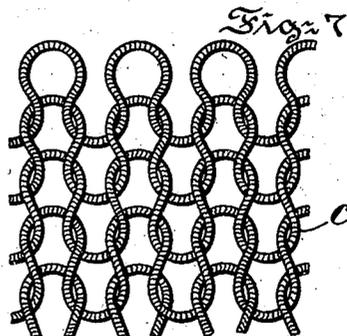
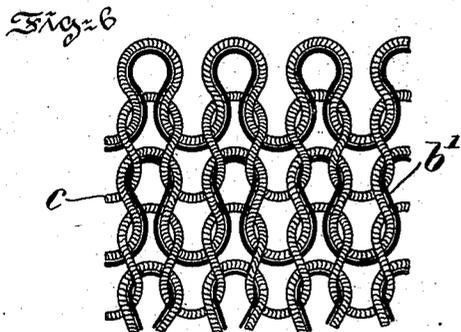
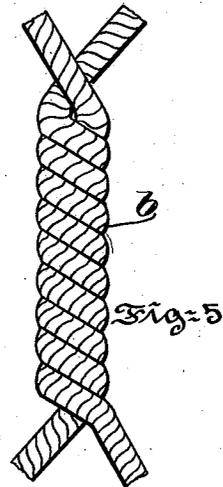
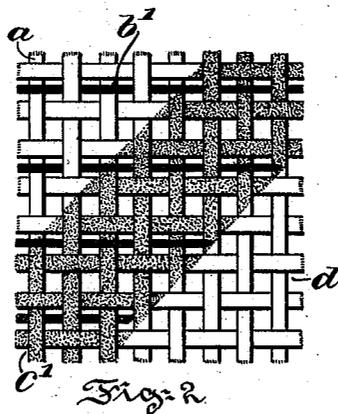
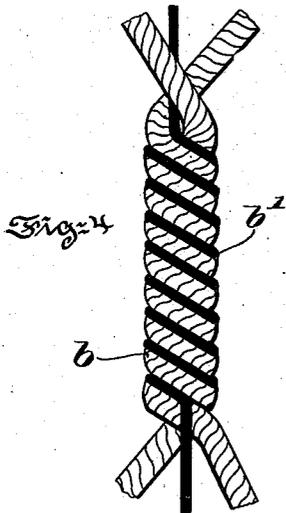
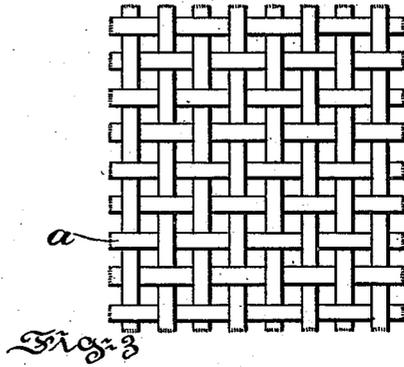
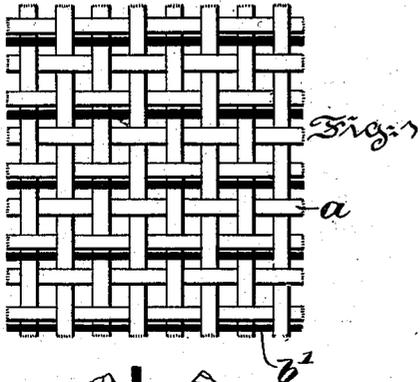


A. L. KENNEDY.

WATERPROOF CLOTH AND PROCESS OF MAKING SAME.

No. 590,842.

Patented Sept. 28, 1897.



Witnesses:
W. Jackson
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UNITED STATES PATENT OFFICE.

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WATERPROOF CLOTH AND PROCESS OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 590,842, dated September 28, 1897.

Application filed December 26, 1895. Serial No. 573,416. (Specimens.)

To all whom it may concern:

Be it known that I, ARTHUR L. KENNEDY, a citizen of the United States, residing at Burlington, in the State of Vermont, have invented certain new and useful Improvements in Waterproof Cloth and Processes of Making the Same, of which the following is a specification.

The principal objects of my present invention are, first, to furnish waterproof cloth, rope, and the like, which presents its natural structure and unglazed or uncoated faces and is possessed of flexibility and durability and is not susceptible to injury upon exposure to the weather, and, second, to provide a simple, expeditious, and efficient method for impregnating the raw fibers of cloth, rope, or the like with pyroxylin or its equivalent.

An article embodying features of my invention is composed of animal or vegetable threads suitably woven or knitted, as in ordinary cloth, or twisted together, as in rope, and these ordinary threads are impregnated with pyroxylin, so that the finished article is waterproof, but presents its ordinary structure and unglazed or uncoated faces and is flexible and durable.

The nature, characteristic features, and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figures 1, 2, and 3 diagrammatically represent stages in the production of the finished article, the latter being illustrated in Fig. 3. Figs. 4 and 5 diagrammatically show my invention in application to a rope, and Figs. 6 and 7 illustrate in a similar manner my invention in application to a knitted web.

In the drawings, *a* represents a woven fabric, *b* a rope, and *c* a knitted fabric. In each case these articles resemble in appearance like known articles. For example, their faces are uncoated and unglazed and present fibers or a nap or a reticulated structure, but they differ therefrom in that they are rendered waterproof by reason of the fact that their threads are impregnated with pyroxylin or its equivalent, as will be more fully understood from the following description. In producing articles of my invention threads, fibers, or strands of nitrocellulose or its

equivalent, as acetate of cellulose, are woven or intertwined as stuffers along with the ordinary threads in the article—for example, by spinning, weaving, knitting, and the like.

As shown in Figs. 1, 4, and 6, *b'* designates nitrocellulose or acetate of cellulose. The article containing nitrocellulose or acetate of cellulose is then sprayed or otherwise treated with a suitable solvent which converts the nitrocellulose into pyroxylin and the acetate of cellulose into a substance analogous to pyroxylin. This step is represented at *c'* in Fig. 2. The pyroxylin diffuses itself and impregnates the raw fibers and their interstices of the ordinary threads, so that the appearance and structure of the article are not changed, and so that it is made waterproof and remains uncoated or unglazed and presents its ordinary textured structure. This step is shown at *d* in Fig. 2.

It will be obvious to those skilled in the art to which my invention appertains that modifications may be made therein without departing from the spirit thereof. Hence I do not limit myself to the details herein set forth and illustrated in the drawings; but,

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

1. An improved manufacture consisting of the within-described textured waterproof article having its face portions composed of natural fibers and its inner portions composed of threads or strands impregnated with a salt of cellulose, whereby ordinary unglazed or uncoated and nappy faces are presented, substantially as described.

2. The described process which consists in entwining or interlacing regular or ordinary threads along with extra strands or fibers of undissolved soluble salt of cellulose to form a textured article, and then subjecting the textured article to a solvent of the salt of cellulose to dissolve the extra strands or fibers and cause the dissolved salt to impregnate the regular or ordinary threads, substantially as described.

ARTHUR L. KENNEDY.

Witnesses:

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