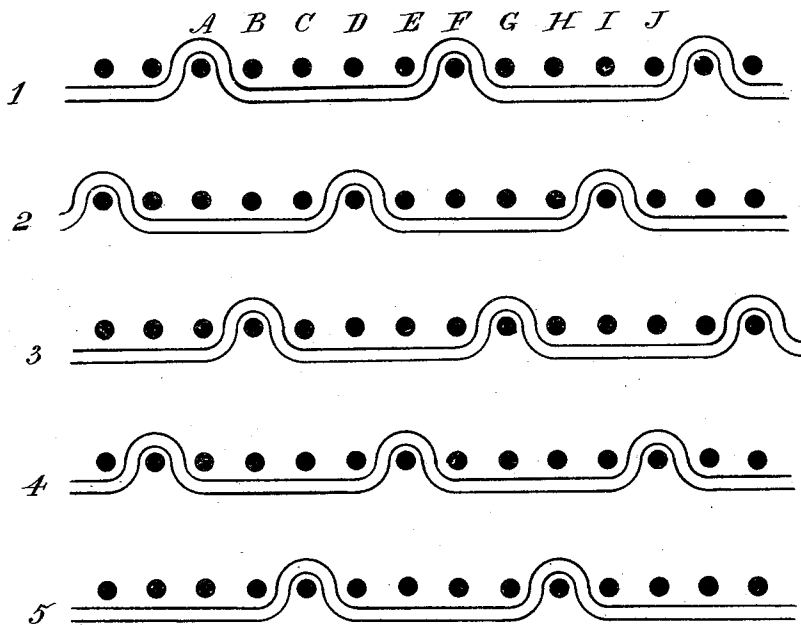


(Specimens.)

J. J. ASHWORTH.  
METHOD OF MANUFACTURING WOVEN FABRICS.

No. 428,296.

Patented May 20, 1890.



Witnesses:

*O. G. Beaman*  
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# UNITED STATES PATENT OFFICE.

JOHN JACKSON ASHWORTH, OF MANCHESTER, COUNTY OF LANCASTER,  
ENGLAND.

## METHOD OF MANUFACTURING WOVEN FABRICS.

SPECIFICATION forming part of Letters Patent No. 428,296, dated May 20, 1890.

Application filed June 11, 1889. Serial No. 313,927. (Specimens.) Patented in England May 17, 1889, No. 8,260.

*To all whom it may concern:*

Be it known that I, JOHN JACKSON ASHWORTH, a subject of the Queen of Great Britain and Ireland, residing at 35 Mosley Street, Manchester, in the county of Lancaster, England, have invented a new and Improved Method of Manufacturing Woven Fabrics; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same. A patent for this invention has been granted in England, No. 8,260, dated May 17, 1889.

This invention relates to the manufacture of fabrics composed of linen and wool or of cotton and wool, the object being the production of a cloth or fabric having on one side a surface practically all of linen or cotton, and having on the other side a surface of wool or imitation flannel, whereby the effect and comfort in wear of real flannel is obtained at a less cost, and whereby other advantages—such as durability and non-shrinking in washing—are gained. This fabric is applicable for shirtings, sheetings, under-clothing, dress-goods of various descriptions, and the like.

The invention relates to the combination together and application *seriatim* of the processes of manufacture and finishing herein-after described and claimed. I use a cotton or linen warp and a woolen weft, and I weave these on an ordinary loom in such a way as to bring cotton or linen to the face, while wool is brought to the back surface of the fabric, and this is done by working the threads in the manner shown in the diagram.

The accompanying diagram shows cross-sections of the fabric as made according to my method of manufacture.

The lines 1 2 3 4 5 represent the consecutive weft-threads of wool, and the dots A B C D E F G H I J represent the warp-threads of cotton or linen.

The linen or cotton yarn before being used in the warp should be first bleached or dyed, if a white or colored or striped face is required, since if this bleaching or dyeing were afterward effected the wool would be injured on the back surface.

On removal of the fabric from the loom it is subjected to the process of milling and scouring, (and stoving, if a white product is required,) and is finished practically in the same manner as ordinary flannel.

The result of the employment of the above processes, as indicated, is to produce by the felting of the wool on the back of the cloth a double-faced fabric of a kind not hitherto known in the market and capable of being worked or used as ordinary flannel.

Any desired quality and weight of the finished fabric may be obtained by varying the thickness of the yarns and varying the "reed and pick" used, and it is obvious that a striped pattern may be introduced, if desired, or the material may be subsequently printed on either or both surfaces.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The improvement in the art of manufacturing fabrics, which consists in weaving a fabric composed of linen or cotton warps and woolen wefts, throwing the warps mainly to one side to form a smooth surface and the wefts mainly to the other side to form a woolen surface, and finishing the fabric thus woven by subjecting the same to the operations of milling and scouring, as and for the purposes set forth.

2. The improvement in the art of manufacturing fabrics, which consists in weaving a fabric composed of linen or cotton warps and woolen wefts, throwing the warps mainly to one side to form a smooth surface and the wefts mainly to the other side to form a woolen surface, and finishing the fabric thus woven by subjecting the same to the operations of milling, scouring, and stoving, as and for the purposes set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN JACKSON ASHWORTH.

Witnesses:

J. WESLEY C. STAFFORD,

WILLIAM BOARDLEY.

Clerks with Ormerod & Allen, Solicitors and Notaries, Manchester.