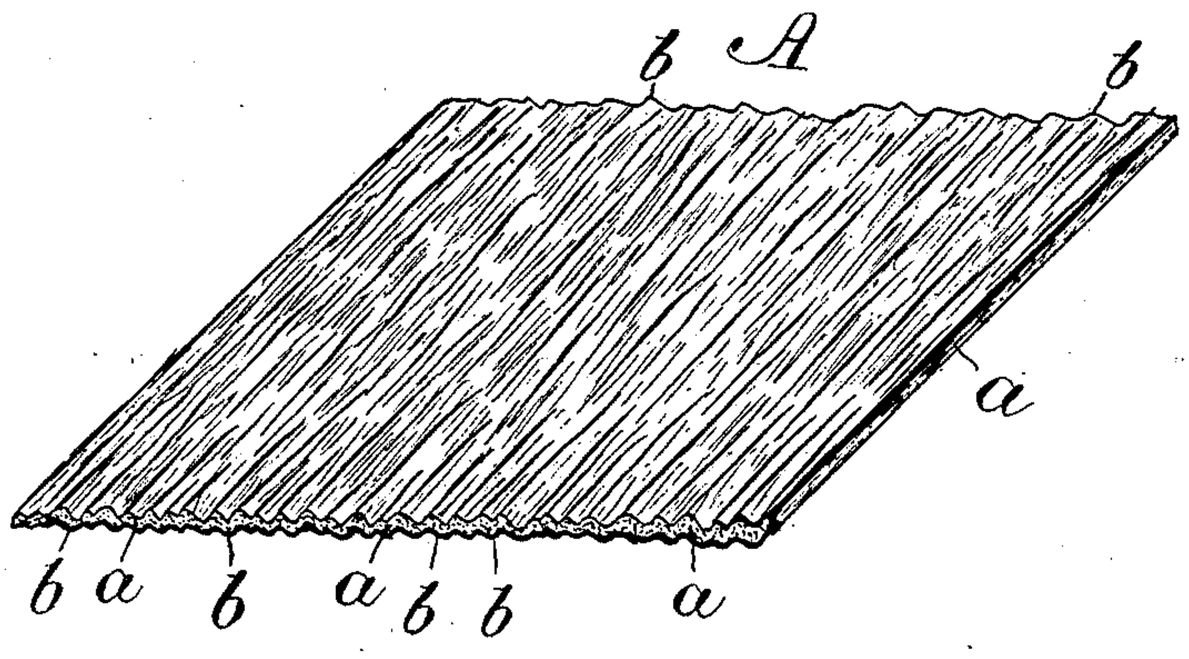
No. 686,878. Patented Nov. 19, 1901.

B. ARKELL.

PAPER FABRIC.

(Application filed Jan. 14, 1901.)

(No Model.)



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PAPER FABRIC.

SPECIFICATION forming part of Letters Patent No. 686,878, dated November 19, 1901.

Application filed January 14, 1901. Serial No. 43,267. (No model.)

To all whom it may concern:

Be it known that I, BARTLETT ARKELL, a citizen of the United States, and a resident of Canajoharie, Montgomery county, and State of New York, have invented certain new and useful Improvements in Paper Fabric, of which the following is a specification.

This invention relates to a new and improved paper fabric, and has for its object to provide a paper fabric that shall have the maximum capacity to maintain itself against strains, which tend to rupture it, and which shall be serviceable for wrapping and packing purposes.

In the drawing forming part of this specification I have shown a piece of my paper fabric in perspective, the thickness being somewhat exaggerated for the sake of clearness.

In carrying out the invention I procure or make a paper fabric having the length of its constituent fibers running generally in the same direction. Such an arrangement of the fibers imparts to the paper the maximum tensile strength in direction of the length of the fibers, but leaves the paper more liable to rupture from strains in a direction transverse to the direction of the length of the fibers. For the purpose of increasing to the maximum the capacity of the paper to maintain itself against transverse strains I form in the paper a multiplicity of crinkles running generally in the same direction as the constituent fibers. These crinkles by reason of their direction do not break the fibers, and hence do not diminish the normal strength of the fibers. On the other hand, they enable the paper to stretch when under strains transverse to the direction of its fibers and crinkles, and so prevent the paper from breaking. When the fabric is under such transverse strain, the crinkles flatten out or unfold, and when the strain ceases the crinkles draw up again and the paper contracts. Thus by the arrangement of the constituent fibers generally in one direction and a multiplicity of crinkles in the same general direction I impart to the paper fabric the maximum capacity to maintain itself against strains, which tend to rupture it.

The fabric is characterized by a pronounced elasticity in a direction transverse to the length of its crinkles and its constituent fibers.

In the drawing, A designates the paper fabric, whose constituent fibers *a* and crinkles *b* run generally in the same direction and as indicated by the arrow.

In carrying out the invention in the best manner I procure a web of paper fabric having the length of its fibers running generally lengthwise the web. This web is uncrinkled, and it is best that it be finished paper. The web is then cut into sheets of suitable length, and the sheets are turned a quarter-way around and secured together, preferably by pasting, so as to form a new web with the length of the fibers running generally transverse the new web. The new web is then passed through a bath and brought onto a smooth surface, such as a metal cylinder, from which it passes against a doctor-blade, by which the paper is turned back on itself and crinkled, the crinkles running generally transverse the web and in the same direction as the fibers.

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

A paper fabric for wrapping and packing purposes having the length of its constituent fibers running generally in one direction, said fabric having crinkles running in the same general direction as said fibers, whereby the maximum strength of the fabric in the direction of its fibers is substantially retained, and whereby the capacity of the fabric to maintain itself without breaking against strain in a direction transverse to the fibers is greatly augmented.

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

BARTLETT ARKELL.

Witnesses:
NICHOLAS M. GOODLETT, Jr.,
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