

No. 818,500.

PATENTED APR. 24, 1906

J. A. WILKINSON.
PAPER.

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Fig. 1,

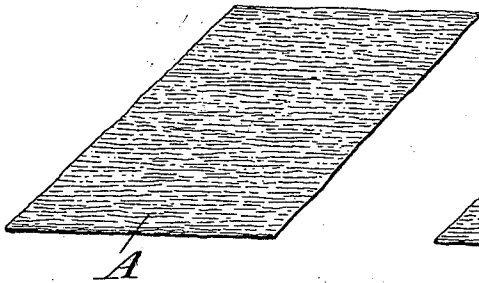


Fig. 2,

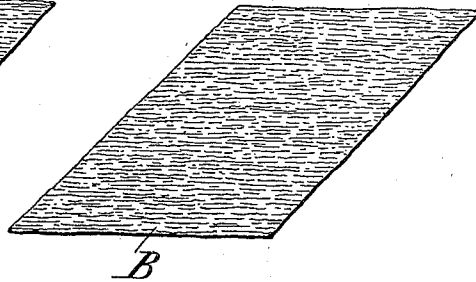


Fig. 3,

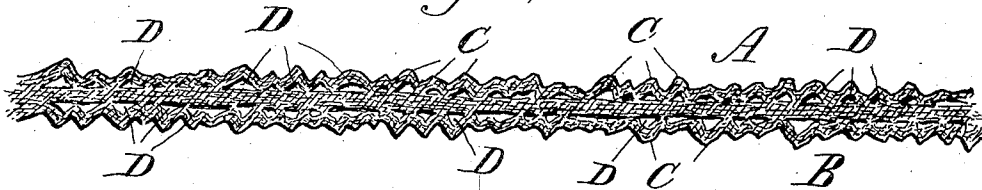
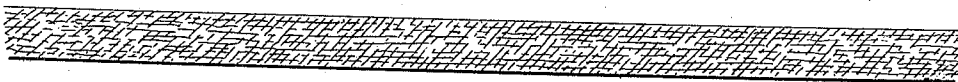


Fig. 4,



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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN A. WILKINSON, a citizen of the United States of America, and a resident of Shelton, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Paper, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in paper; and it consists in a new article of manufacture, comprising paper, whose opposite surfaces are vesicated by numerous minute oblong blisters disposed in substantial parallelism.

The opposite surfaces of the paper are substantially alike, but are in no sense complementary to each other, as in the form of corrugated paper. Paper thus vesicated incloses between its upper and lower surfaces innumerable minute air cells or pockets, whereby the paper becomes soft, flexible, and light for its bulk. Furthermore, it is exceedingly strong, because it will uniformly resist a bursting strain and has a very pleasing appearance.

The material from which my improved paper is formed is preferably rope, the plain paper from which my paper may be produced being known as "rope" paper. To produce my paper, ordinary rope paper may be taken and the upper and lower surfaces suitably vesicated in any desired manner. This vesication may be produced by progressively folding the paper first in one direction and then in the other. This may be done by hand or by suitable machinery provided for the purpose. The effect of folding the paper progressively is to produce oblong minute blisters, which blisters run longitudinal of the fold and transverse of the path of progression. These blisters are formed by the unequal tension upon the paper at opposite sides thereof as it is being folded back and forth upon itself, the fibers of the paper being partially severed, and in this way air-pockets or air-cells are formed. In appearance this paper closely resembles one side of a certain class of paper known as "crêpe-paper." The surface of crêpe-paper is produced during the process of manufacture of the goods, the material being removed from a roll while in a wet condition by a knife or doctor set at the proper angle. Such paper has clustered projections upon one side—i. e., upon the side away from the roll—while on the side next to the roll it has

in addition to these clustered projections a plurality of larger projections at intervals. The physical differences between my paper and such paper, however, are marked in that a cross-section of the crêpe-paper shows that the projections are formed of solid material or portions of the material having a uniform density. In other words, the projections are not blisters, and the material has no air pockets or cells. A given quantity of this crêpe-paper of the same average thickness as my paper weighs considerably more than does the paper of my invention herein.

Another form of paper, also sometimes called "crêpe-paper," but which is in reality a crimped paper, is formed by crimping or wrinkling the paper. The opposite sides of paper of this description are complementary to each other, just as is any material of corrugated or crimped form.

In the sheet of drawings forming a part of this specification I have endeavored to illustrate in somewhat diagrammatic form paper embodying my invention; but it must be understood that these illustrations are more or less diagrammatic and arbitrary, for the reason that it is the general characteristics only of various pieces of the paper which are alike, no two pieces being ever exactly similar.

Figures 1 and 2 show front and rear views of a piece of paper embodying my invention, the two views illustrating the similarity between the front and rear surfaces and the characteristic uniformity of the vesication. Fig. 3 is a cross-sectional view, much enlarged and exaggerated, the section taken transverse of the blisters and illustrating, first, that while the front and rear sides of the paper are substantially alike, they are not complementary the one to the other, as in crinkled or corrugated paper, and, second, the air cells or pockets caused by the partial severing of the fibers by which the vesication is produced. Fig. 4 is a view in similar cross-section and upon the same scale as Fig. 3, of a sheet with plane surfaces from which the article shown in the other figure has been produced.

A represents the front of the paper, and B the rear thereof.

CCC designates the blisters, which it will be seen run in a general direction from side to side of the sheet and of which there are a large number disposed in substantial parallelism. The air cells or pockets D appear in the cross-section, Fig. 3. In Fig. 4 is shown

a view in cross-section of a paper before it has been treated. As stated, this material is preferably rope paper, because I find such paper gives the best result, owing to its toughness. In this class of paper the fibers may be partially severed, so as to form the air-pockets D and blisters C without impairing the strength of the sheet, as a whole. In fact, I have found by actual tests that the sheet in its final condition is actually stronger than before, this being due to the fact that the paper after treatment has a greater flexibility than before and while substantially inelastic will yield sufficiently to spread the resistance to a strain over a greater surface. It will also be seen that the average thickness of the new product is greater than the average thickness of the plain sheet from which the same is produced, although the amount of material remains the same.

What I claim is—

1. As a new article of manufacture a web or sheet of paper having blistered upper and lower surfaces, the blisters comprising air cells or pockets between the said upper and lower surfaces.
2. As a new article of manufacture, a web or sheet of rope paper having blistered upper and lower surfaces, the blisters comprising air cells or pockets between the said upper and lower surfaces.
3. As a new article of manufacture a web or sheet of rope paper having vesicated surfaces produced by blistering a plane sheet the blisters comprising air cells or pockets between the upper and lower surfaces

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Witnesses:

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