

UNITED STATES PATENT OFFICE.

FRANCIS N. DAVIS, OF BELOIT, WISCONSIN.

IMPROVEMENT IN PAPER-BOARDS FOR BUILDINGS, &c.

Specification forming part of Letters Patent No. 124,795, dated March 19, 1872.

To all whom it may concern:

Be it known that I, FRANCIS N. DAVIS, of Beloit, in the county of Rock and State of Wisconsin, have invented a new and Improved Building Paper or Board; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to manufacture and use the same.

In the construction of building paper or board made in continuous lengths from straw, various results have been accomplished to render the article more general and useful in its application to the interior of buildings.

The first step in the development of this art consisted in producing a thick board or paper in continuous lengths from straw, to be used as a substitute for laths and plastering.

This, however, was open to two objections, to wit: first, it was easily warped and otherwise effected by atmospheric changes, and secondly, it was not fire-proof.

To remedy the first of these defects the board was treated with coal-tar in the process of construction, but this being found objectionable on account of the disagreeable odor of the tar, a further step was taken to remove it by treating the board with inodorous oils, oleaginous compounds, resins, &c. These, however, discolored the board or paper to a great extent, and, owing to their greasy nature, precluded the use of paper-hangings after the board had been applied.

These products were also found to be highly inflammable, and consequently unsafe for use in slight structures.

To render the board both fire and damp-proof, and at the same time prevent its discoloration, constituted the last and most important step in the art. This was effected by treating the board with a solution of alum or its equivalent, by which it was coated upon both sides and impregnated to a certain degree.

These various improvements were all direct-

ed to the perfection of the board, so that it could be used in place of laths and plastering in the interior of buildings. After being applied it was either painted or covered by ordinary paper-hangings to impart the necessary finish.

My invention has for its object to develop the final step necessary for the perfection of this product by supplying for general use an article of straw-board or paper which shall not only take the place of laths and plastering, but also form a substitute for the wall-paper, and which may also be made at the same time water-proof or fire-proof, or combine both these qualities, as I will now proceed to describe.

In carrying out my invention I take the continuous lengths of straw-board, either plain, or rendered fire-proof, or water proof, or both, and pass them first between suitable rollers, arranged within a vat, for the purpose of laying on the ground-color. The board is then passed between two or more additional sets of rollers, which print upon the ground-color any desired ornament, figure, or design in different colors or combinations of colors.

Preferably I arrange the various rolls and color-vats to be used in connection with the paper-engine upon which the board is made, so that by continuous operations from the pulp-vat to the final winding-rolls, the finished lengths of board are produced, grained, embossed, gilded, or otherwise ornamented with figures and designs like those of common wall-paper.

The ground-coloring and the printing-rolls and vats may, however, be used separately from the paper-engine, if desired, and they may also be disconnected from each other and used at different times.

By my invention a heavy paper or board is produced which serves as a substitute for laths, plastering, and paper-hangings.

I propose to use any quality of board or paper, either plain or rendered fire-proof or water-proof, or both, by any suitable process;

but I prefer to employ the article for which Letters Patent of the United States were granted to me the 18th day of July, 1871, as it combines the most desirable quantities for building purposes.

Having thus described my invention, what I claim is—

1. As a new article of manufacture, building paper or board in continuous lengths, made either plain, or fire-proof, or water-

proof, or both fire and water proof, and having a wall-paper finish, for the purposes specified.

2. The process, substantially as described, for giving a wall-paper finish to continuous lengths of building paper or board.

FRANCIS N. DAVIS.

Witnesses:

L. J. LANE,

C. G. COMSTOCK.