

# UNITED STATES PATENT OFFICE.

THOMAS CROSSLEY, OF BRIDGEPORT, CONNECTICUT.

## IMPROVEMENT IN PRINTED PILED CARPETS.

Specification forming part of Letters Patent No. **139,706**, dated June 10, 1873; application filed February 4, 1873.

*To all whom it may concern:*

Be it known that I, THOMAS CROSSLEY, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented an Improvement in the Art of Manufacturing Printed Carpets having a surface of pile, of which the following is a specification:

In printing carpets upon fabrics of pile, such as Brussels, tapestry, or velvet, the colors have heretofore been mixed with gum and pipe-clay, in about equal proportions of each of the latter, forming the base, the combined materials being then boiled, and afterward applied to blocks and then printed upon the fabric. The effect of boiling was so to combine the materials of the base that, after printing, the color was held by the base, and a large proportion of the coloring materials was not taken up by the wool, and the residuum remaining in combination upon the surface of the fabric had to be removed by washing. The water dissolved the gum and permitted the base to be washed off. It had been suggested that such carpets could be cleaned by beating or brushing, with or without washing. Although I was not aware that others had tried or even suggested this means of cleaning carpets, I made repeated attempts to clean printed carpets, manufactured in the usual way, by beating and brushing, but found that it was impossible to do so. Such was the tenacity with which the gum held the base to the surface of the fabric that the attempt to remove the base resulted in destroying the fabric, or in insufficient cleaning. Accordingly I was compelled to abandon the attempt as a failure.

The effect of washing the carpet after it was printed has been, and is, where printing has been conducted by any means heretofore known, to shrink the fabric of the usual width of such goods about an inch and a half, and also to transfer a part of the color to the jute back, and to dissolve the color of the jute and mingle it with the colors on the face of the carpet, changing their shades. The carpet, after it has been printed, must be caught by tenter-hooks and stretched with the application of great force, which only brought the carpet back to a portion of its

original width, and left the edge serrated, projecting at the places where the tenter-hooks are attached. The result was that only an inferior quality of carpeting could be made by printing.

Continuing my experiments, I finally discovered that by boiling the gum, and then mixing the solution with a solution of pipe-clay in cold water, and then combining small quantities of the cold solutions to form the base in proportions of about twenty per cent. of the gum to eighty per cent. of the solution of pipe-clay, and then stirring in the color and applying immediately to the blocks, a much larger proportion of the coloring material was taken up by the wool; and after steaming, in the way heretofore practiced by me, the base may be easily removed by beating and brushing without washing.

I produce by this means a printed carpet of a face of pile, of the full width of the woven fabric, not serrated upon the edges, and not having the colors extended through the jute back, nor the colors modified by that of the jute back, and clearly and distinctly distinguishable from any other printed carpet heretofore known.

The whipping-machine which I use has a series of successively-operating whippers, actuated by cams or side shafts, so actuating the whips that they are made successively, and alternately on each side, to strike on the back of the carpet as it is carried under them. The carpet is then passed through a brushing-machine having revolving brushes acting on the surface of the pile, the carpet being so bent that the brushes may act on both sides of the piles, so as to clean them to their junction with the back or body of the carpet. This machine will be made the subject of another application for Letters Patent.

I do not claim whippers and brushes for cleaning carpets, for these I know are in common use for cleaning carpets which have been used. I do not, however, desire to limit my claim to the precise composition of the base and coloring material, nor to the use of whippers and brushes in combination, as other frictional appliances, with the aid of



currents of air, may be used for breaking and removing the base, if sufficiently friable.

What I claim as my invention, and desire to secure by Letters Patent as an improvement in the art of manufacturing printed carpets having a surface of pile, is—

The mode of manufacturing printed carpets by first applying the colors with a friable base, and then, after steaming, cleaning mechan-

ically, substantially as set forth, so as to dispense with the necessity of washing.

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

THOMAS CROSSLEY.

Witnesses:

DAVID B. LOCKWOOD,  
JAMES STAPLES.