

# UNITED STATES PATENT OFFICE.

FREDERICK BECK, OF NEW YORK, N. Y.

## FELT PAPER AND PROCESS FOR THE MANUFACTURE THEREOF.

SPECIFICATION forming part of Letters Patent No. 359,531, dated March 15, 1887.

Application filed July 29, 1886. Serial No. 209,462. (Specimens.)

*To all whom it may concern:*

Be it known that I, FREDERICK BECK, of the city, county, and State of New York, have invented certain new and useful Improvements in Felt Paper and in the Process for the Manufacture thereof, of which the following is a specification.

My invention has reference to what is known distinctively as "cloth-surface" or "felt" paper—that is to say, a paper made from a comparatively coarse-fibered stock or pulp, having a surface texture and appearance similar to a rough or felted cloth, in contradistinction to the hard, smooth, and comparatively even surface of ordinary papers—the object I have in view being more particularly to produce a paper of this kind which shall be particularly adapted for decorating walls and ceilings.

In carrying out my invention I make the paper from uncolored pulp—that is to say, pulp that is left in its natural color, according to the stock employed—intending by the word "uncolored" to distinguish the pulp from that which may be either artificially colored or bleached, so as to be brought to substantial uniformity of color. The formed felt paper thus made has a felted cloth surface which is not of uniform color, but is of flecked appearance, owing to the arrangement and varying shades of the fibers of which it is composed. One or both faces of this paper I then color, using, preferably, a thin water-color, which is a surface color only.

In order to more particularly define and ascertain my invention I remark here that I am aware that colored paper has been produced by dyeing the pulp before forming it into paper. In this case the fibers are uniformly colored before made into paper, and the paper itself is of uniform color and without that softness and tone which characterize my improved paper. Paper, after it has been formed—that is, compressed and dried—has also been colored by the dyeing process—that is to say, by immersion in a vat containing the coloring-liquid, which was allowed to soak into and permeate the paper—this operation being generally preliminary to that of glazing the paper. This process, however, results in the

production of a paper of substantially the same uniform color as that first above referred to. Liquid colors have also been applied, in the manufacture of ordinary papers, to the pulp web at various stages before the completion of the paper. Paper—such as drawing paper or board—having a hard finish and comparatively smooth surface of uniform color has also been colored with a wash of color applied to its surface, the surplus of the wash being removed by the application of blotting-paper or some other absorbent material, so as to leave the residue irregularly distributed over the surface of the paper.

None of the foregoing processes is effective to produce the result which I have in view.

In my case the peculiar soft and pleasing variations in the tone and shades of the colored surface of the finished product are not dependent upon or due to irregular distribution of color, for that may be applied with absolute evenness and uniformity, but to the texture itself and fibers of the uncolored paper—that is to say, the felted paper made from uncolored pulp, as hereinbefore set forth. The application of a uniform wash of color to such cloth-surface paper imparts to it a general uniformity of color, which is relieved by minute and countless variations in shade, due to the vari-colored natural fibers of the pulp from which the paper is made, thus producing the effect which is the object I have in view in my invention.

To enable those skilled in the art to practice my invention, I will now proceed to set forth more particularly the manner in which it is or may be carried into effect.

The first step is to prepare an uncolored pulp, such as above adverted to. This pulp, by well-known processes, is then formed into sheets or rolls of what is known in the art as "cloth-surface" or "felt" paper. Such felt paper is then "grounded" on one or both faces with a coating of water-color mixed with animal or vegetable size, and either with or without alum or its equivalent. The size I employ at the time of applying the color is in addition to the size used in the pulp-vat by paper-makers, it being used by me the better to fix the color upon the paper.



The method of mixing the colors is well known to those skilled in this art, and does not require description here, further than to state that the colors should be very much thinned  
5 or reduced by the addition, generally speaking, of about twice the amount of water from that ordinarily employed. The proportions, however, will depend somewhat upon the special color used and the particular effect desired, all  
10 of which is now well understood.

As stated, the color may be applied to one side of the paper only, or to both sides, as desired, and if to both sides, then one side may be of a different color from the other. This  
15 feature is useful in making papers for use other than that of wall-papers—as, for instance, for book-binders' and like uses—and hereinafter where I refer to the "surface" of the paper I mean either one or both sides.

20 My papers, as stated, may be made either with or without the employment of alum. I prefer, however, to use the alum or its equivalent, since thereby the color becomes more fixed. This coating of thin color may be ap-  
25 plied to the paper in any suitable manner and by any suitable means; but I prefer to employ revolving brushes in conjunction with a suitable apparatus. I have found that somewhat stiff brushes produce the best results.

30 I wish it to be understood that I do not limit myself to a "color," so called, mixed with a size, because a dye—such as the anilines and other dyes suitably prepared—may be employed instead of the colors. I prefer the colors,  
35 however, because by their use the tints and shades of color can be more easily and accurately secured, and also on the score of cheapness.

40 The papers thus made by me have a peculiarly flocky appearance, or rather a certain depth of softness strongly resembling cloth, certain particles of the stock not being acted

on by the thin coloring-matter to the same extent that other parts are, and these partially-colored particles appearing on the surface give  
45 a peculiarly soft effect. Moreover, my papers do not polish when rubbed, as flock papers made in other ways do.

The sizing may be applied as a separate operation preceding or succeeding the appli-  
50 cation of the color; but I prefer to apply them both together, as stated.

In addition to the advantages of superior product, I make a large saving in cost of manu-  
55 facture, because when the pulp is colored in the vat it takes up a much larger amount of coloring material than is employed by my process, even when both sides of the paper are colored, and some of the coloring materials  
60 are expensive.

My papers may be embossed, printed, or otherwise ornamented in the same manner as other papers of a like class, and any color or  
shade of color used in this art may be employed.

Having described my invention, I claim—  
65

1. As a new manufacture, cloth-surface or felt paper made from uncolored pulp, and  
tinted or colored on the surface only, substantially as hereinbefore set forth.

2. The described process of making colored  
70 felt paper, consisting in first producing an uncolored pulp, then forming the same into sheets or rolls of felt paper, and then coloring or tinting the surface only of said paper, substantially as and for the purposes hereinbe-  
75 fore set forth.

Signed at New York, in the county of New York and State of New York, this 28th day of July, A. D. 1886.

FREDERICK BECK.

Witnesses:

THOS. J. WAY,  
A. G. WANIER.