

UNITED STATES PATENT OFFICE.

FREDERICK BECK, OF NEW YORK, N. Y.

DECORATING WALL-PAPER.

SPECIFICATION forming part of Letters Patent No. 322,034, dated July 14, 1885.

Application filed May 9, 1885. (No specimens.)

To all whom it may concern:

Be it known that I, FREDERICK BECK, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Paper, of which the following is a specification.

My invention relates to an improvement in papers and in their mode of manufacture, the papers made by me being especially intended for decorative purposes; and it consists in admixing with the paper while yet in the pulp state certain bodies which will give to the finished paper a glistening, colored, or other ornamental appearance. The papers which I produce are specially designed by me for wall and ceiling coverings, although well adapted for many other uses in which a decorated paper is desired.

My invention more particularly described is as follows: I admix with the pulp from which the paper is to be made finely-comminuted mineral bodies, such as mica, talc, sand, glass, and other like bodies capable of producing a glistening, colored, or ornamental appearance when seen upon the surface of the finished paper, and which will retain substantially their original appearance indefinitely. The percentage of these bodies relative to the pulp will depend upon the effect desired to be produced and also in some cases upon the materials employed. They may be, however, from about five per cent. to about sixty per cent. of the entire mass; and for use as wall or ceiling coverings I prefer pulp of long strong fiber to a shorter finer quality, since strength rather than fineness of surface is desired. The character of the pulp will, however, be determined by the use to which the finished paper is to be put, as is well understood by paper-makers. These bodies are, as stated, reduced to a finely-divided state, either in the form of small scales or little granules, as the case may be, depending largely upon the character of the particular body employed; and they are then thoroughly admixed in any suitable manner, and by the use of any suitable apparatus, with the pulp, which, as stated, may be made of any desired paper-stock suitable for making the special kind of paper desired; and these bodies so admixed may in many, and, in fact, most cases, take the place

of the ordinary fillers used in the manufacture of papers in whole or in part—such as clay, terra-alba, wood pulp, and the like. The pulp thus prepared is made into sheets in any suitable paper-making apparatus the same as in the manufacture of ordinary papers, and it may be either sized or unsized, and the sizing may be introduced into the pulp or applied as a “top sizing,” so called, as preferred. When the paper is finished, it will be found that the particles of the bodies named by me thus admixed appear on the surfaces of the sheet and give to it a glistening or colored appearance, depending on the character of the body introduced, more or less brilliant or deep, depending upon the percentage of such bodies used, and a continuous unbroken glistening or colored surface may easily be produced resembling a solid sheet of mica, &c., as the case may be, by the employment of from forty to sixty per cent. of such bodies, respectively. I have also found that I can produce very decorative effects by dyeing or otherwise coloring the mica, talc, glass, sand, &c., with different colors or different shades of the same color, and then admixing them, as before stated, with a pulp which has received the same or a different color or colors or shade of color, thus producing a surface having minute glistening or colored spots of different colors upon a base or background of the same, or a different color or shade of the same color.

The coloring material which I have found useful for dyeing the pulp, and also the bodies named, are the aniline colors generally; but any suitable coloring material may be employed. Both surfaces of the paper will present the same decorated appearance, if made as above set forth; but I also make papers having but one surface, or one side only thus decorated by applying a sheet of the pulp admixed with the bodies named to one or more backing-sheets of the ordinary paper. This is preferably done during the manufacture of the paper in a manner now well known to paper-makers; but it may be done after the respective sheets have been made by the employment of a suitable adhesive material placed on the meeting-surfaces of the sheets, and a heavy thick paper can be very successfully made with both sides decorated by the use of two sheets of the paper containing the

bodies named attached to both sides of another central sheet made in the ordinary manner, and this central sheet may be made of stock of low grade to cheapen the manufacture, if
 5 desired. The union of the several sheets in this case, also, may be effected during the manufacture of the same or afterward, as before stated; and a thick heavy sheet of my decorated paper may also be made by the union of
 10 several thicknesses or sheets of the paper containing the bodies named by me, the several sheets being united by pressure, &c., as now frequently done by paper-manufacturers in the manufacture of heavy sheets of ordinary
 15 paper. I also incorporate with the pulp two or more of the bodies named by me, thus producing strikingly decorative effects, for example, mica and fine red sand. This, when varnished with a transparent varnish or wash,
 20 gives a remarkable appearance to the walls and ceilings of a room.

In addition to the above-named bodies I introduce into the pulp in the same manner certain metallic bodies, using, however, only
 25 those that have the capacity of retaining their original ornamental or brilliant appearance for a long time, in other words, those which do not readily rust, corrode, tarnish, or otherwise lose their decorative appearance—such,
 30 for instance, as gold-foil—or those which, being treated with acids or heat, or otherwise changed, attain fixed colors different from those originally possessed by them, although I may use other metals finely divided, provided the paper, when finished, has a coat of
 35 varnish or other suitable preservative applied to it which will protect the particles of metal from contact with the atmosphere, and thus maintain their original decorative appearance.
 40

I am aware that prior to my invention decorated papers have been made by first making the paper in the ordinary manner, and then coating it with a film of adhesive substance,
 45 and then, while the adhesive substance is still sticky, applying finely-divided mica thereto, and then allowing it to dry; and also that an adhesive and transparent paint-like coat, having fine mica or talc admixed with it as a
 50 sort of pigment, has been applied to the surface of sheets of paper with brushes and then allowed to dry; but these methods, and also the resulting product, are entirely different from my present process and the product
 55 thereby produced.

I am also aware that for the purposes of producing a paper suitable for bank-notes, promissory obligations, bonds, &c., which cannot be tampered with after having been filled
 60 out or printed, metallic filings and metallic powders have been admixed with benzine, and this mixture incorporated in the pulp of the paper; but the presence of the benzine would render such papers quite unfit for the decorative uses to which I put my papers; and, moreover, such metals have never been treated to change their color or render it fixed, nor has

gold or other metal which retains its normal decorative appearance indefinitely ever been
 70 so used; nor has such paper ever been varnished after it has been formed in sheets, and could not be, because it has subsequently to be printed or written upon, and the varnish would repel the ink; and I am also aware that metallic particles have been embedded in the
 75 interior of a sheet of paper, not appearing on the surface thereof, so that if chemicals were employed to remove the writing or printing on the paper the action thereof on the metals just below the surface of the paper would at once
 80 disclose the attempted tampering. This is not my invention, because the particles do not appear on the surface of the paper, which is my especial object for the purpose of decoration.

I do not limit myself to the proportions
 85 stated nor to the employment of any specific body for the purpose stated, with the limitation, however, that the bodies employed must be adapted and must have the effect of ornamenting or decorating the surface of the paper when completed.

Having described my invention, I claim—

1. The described improvement in the manufacture of paper, consisting in admixing with the pulp finely-divided mica, talc, glass, sand,
 95 or like body, substantially as and for the purposes set forth.

2. As a new manufacture, paper composed of pulp having admixed therewith finely-divided mineral bodies which have a glittering
 100 or lustrous appearance, whereby a glistening appearance is given to the surface of the paper, substantially as and for the purposes set forth.

3. As a new manufacture, paper composed
 105 of two or more sheets of paper united to each other, one of which sheets has mineral bodies incorporated therewith and embedded therein, substantially as and for the purposes set forth.

4. As a new manufacture, paper composed of a colored pulp having incorporated therein colored or stained and finely-divided metallic or mineral bodies, substantially as and
 115 for the purposes set forth.

5. The described process of manufacturing paper, consisting in first preparing the paper-pulp as usual in such manufacture, then admixing therewith finely-divided mineral
 120 bodies having a lustrous appearance, and then forming the mass thus produced into sheets, substantially as specified.

6. The described process of manufacturing paper, consisting in first preparing the paper-pulp as usual in such manufacture, then dyeing the pulp, then admixing therewith finely-divided and colored or dyed metallic or mineral
 125 bodies, and then forming the same into sheets, substantially as specified.

7. The described improvement in the manufacture of paper, consisting in the employment of finely-divided metallic and mineral bodies as a "filler," so called, in the place of clays, terra-alba, wood pulp, &c., as now employed.

8. As a new manufacture, paper composed
of pulp having admixed therewith finely-di-
vided metallic bodies, the said paper, after be-
ing formed in sheets, having the surface there-
5 of coated with a protecting material, whereby
the atmosphere is prevented from coming in
contact therewith.

9. As a new manufacture, paper composed
of pulp admixed with metallic particles which
10 have been treated with acids, heat, or other
suitable agent, whereby they acquire a per-
manent fixed color, substantially as and for
the purposes set forth.

10. The described process of manufacturing

papers, consisting in first preparing the paper- 15
pulp, then admixing therewith finely-divided
mineral or metallic bodies, then pressing the
paper into sheets, then varnishing or other-
wise protecting the surface of the sheet from
contact with the atmosphere, substantially as 20
set forth.

Signed at New York, in the county of New
York and State of New York, this 5th day of
May, A. D. 1885.

FREDERICK BECK.

Witnesses:

JOHN H. IVES,
SHERWOOD CONNELL.