

Dec. 22, 1925.

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J. L. PERKINS

METHOD OF MAKING DECORATED CREPE PAPER

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Fig. 1.

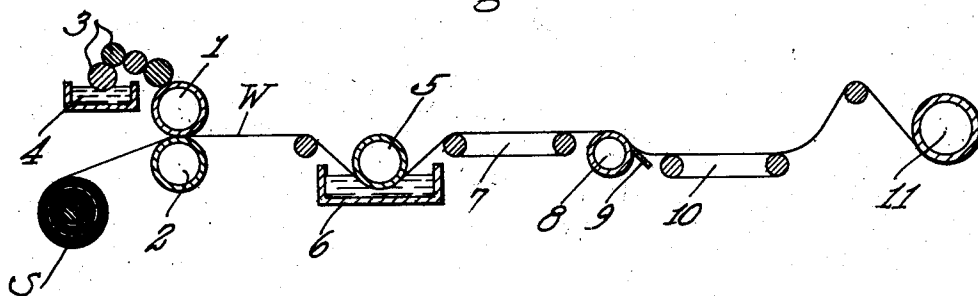


Fig. 2.

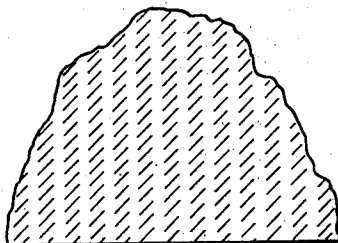
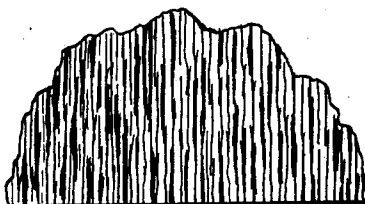


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN L. PERKINS, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO AMERICAN TISSUE MILLS, OF HOLYOKE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

METHOD OF MAKING DECORATED CRÊPE PAPER.

Application filed December 30, 1924. Serial No. 758,931.

To all whom it may concern:

Be it known that I, JOHN L. PERKINS, a citizen of the United States, residing at 150 Lincoln Street, Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Methods of Making Decorated Crêpe Paper, of which the following is a specification.

This invention relates to improvements in the method of producing ornamented crêpe materials and more particularly to a method of producing ornamented crêpe paper.

According to one process now commonly employed, tissue paper is crêped and then printed, while according to another process the paper is crêped during its manufacture while wet and subsequently decorated by printing or embossing. These processes, however, are objectionable and offer disadvantages for the following reasons. The paper necessarily is subjected to rehandling which entails a considerable unnecessary manufacturing expense. The design applied to the previously crêped paper, whether by printing, embossing or the like, by reason of the pressure employed in applying the designs crushes the ridges of the crêping and impairs the velvety crêped effect of the paper. The design is not applied to the crevices between the upstanding ridges and when the paper is stretched, as it is in use, the effect of the design is destroyed. Further, the design which, of course, is more or less regular in its appearance is not sufficiently uneven or irregular to coincide with the uneven velvety appearance of the paper, or in other words, the velvety uneven effect of the surface is destroyed by being impressed with a design that is not in accord therewith.

According to one novel feature of my invention, I provide a method of producing ornamented crêpe paper by decorating the paper with a design prior to the crêping operation, whereby the design is varied by the upstanding ridges and depressed creases of the crêping in such a manner that the finally crêped paper carries an ornamentation that is irregular in appearance and in accord with the general uneven and velvety effect of the surface of the crêped paper.

Another feature of the invention enables me to decorate the paper so that the decoration may appear in the crevices between the ridges, whereby the design will not be de-

stroyed if the paper is stretched, and by decorating the paper prior to the crêping operation, it is not subjected to pressure that is likely to impair the velvety crêped surface.

According to a further novel feature of the invention I arranged the successive steps of my improved method in such a manner that a continuously moving web of paper may be processed by successively ornamenting and crêping the web to thereby eliminate the rehandling now necessary.

Other novel features and advantages will be apparent from the following description of the invention which may be practised by means of the apparatus diagrammatically shown in the drawings although it will be understood that any suitable form of apparatus may be employed that is adapted to perform the various steps forming the method of my invention.

In the drawings:

Fig. 1 is a diagrammatic elevational sectional view showing one form of apparatus adapted for the practice of my invention;

Figs. 2 and 3 are plan views of a portion of a web of paper showing the appearance of the design before and after the paper has been crêped.

The apparatus shown will now be described.

A web of paper W is led from a supply roll S to a pair of drums 1 and 2, the upper drum 1 of which pair may be an offset roll to carry a design upon its surface, and may contact with a train of rollers 3, one of which has its surface in contact with a coloring liquid such as ink of a font 4. The color of the ink or coloring material may, of course, be as desired to contrast with the color of the paper web and to thereby decorate the said web. The mechanism illustrated is intended merely to show one form of an apparatus that may be employed to impart a design to the traveling uncrêped paper web as the web passes between the rolls and obviously may take the form of a printing press or the like.

The design that I have selected for descriptive purposes is represented in Fig. 2 and, as shown, comprises a plurality of parallel stripes of a color contrasting with that of the paper web, as for instance, crimson stripes on a green paper.

The web is led from the decorating drums to the under side of a roll 5 that is rotatable

above a tank in such a manner that its surface will direct and contact the decorated paper web with a liquid contained in the tank 6.

5 The liquid and its application to the traveling paper web functions to moisten the web to the desired degree so that the web is softened or conditioned in order that it will lend itself readily to the crêping operation
10 to follow. The liquid may include any suitable sizing necessary or desired to adapt it to function as required, and may, in addition to its ability to condition the paper, also carry a color for tinting or shading the web,
15 should it be desirable to change or vary the color of the web after it has been decorated with the design.

From the tank the paper web is led onto a traveling endless belt structure 7 that supports the moistened paper web and delivers
20 it onto the face of a drum 8 which has a crêping doctor or plate in scraping contact therewith. The crêping doctor functions in the usual manner to remove the moistened
25 paper from the drum and crinkles it to give it the crêped effect desired. Other forms of crêping or crinkling apparatus may be employed, such as coacting corrugated rolls or the like, the apparatus shown being merely
30 intended to disclose a suitable means for crêping the decorated and moistened paper so that it has the desired velvety uneven surface.

From the crêping mechanism, the decorated and crêped paper is led onto a drying
35 drum 11 of a drier, which, as is well known, may be internally heated for drying the web. The drier may consist of a plurality of drums, the desirability of which will be determined by those practicing the invention.
40

From the drier the paper is led onto and reeled by a take-up, and although not shown it may comprise the ordinary and usual style of take-up such as is used in paper manufacturing plants.
45

Each of the units of the apparatus may be driven from suitable sources of power and at such relative speeds as may be desired so that the successive steps in the method are
50 properly inter-related to produce the results desired.

The paper web by being thus decorated

prior to the crêping thereof renders it possible to apply the design so that it appears in the crevices between the ridges, and also the velvety effect of the crêping is not impaired as there is no pressure applied to the paper after it has been crêped. 55

Furthermore, any well defined design that may be applied to the uncrêped paper is varied by the crêping thereof so that the design is then somewhat irregular and therefore coincides with the uneven velvety appearance of the paper itself. 60

From the foregoing it will be apparent that it is possible to produce crêpe papers that carry various ornamentation by applying various designs to the uncrêped paper. Also it will be observed that by the employment of my improved process that it is possible to produce a large volume of paper at a low cost since the successive steps in the process are arranged so that a continuous web of paper is treated. 65 70

I am aware that various forms of apparatus may be employed for the practice of my invention and I therefore prefer to be limited by the following claims rather than the foregoing description. 75

What I claim is:

1. The method of producing ornamented crêpe paper which consists, in decorating uncrêped paper with a design and thereafter crêping the decorated paper to vary the design. 80 85

2. The method of producing ornamented crêpe paper web which consists, in decorating a continuous web of paper with a design, in moistening the decorated web to condition it for the crêping operation and thereafter in crêping the conditioned and decorated web. 90

3. The method of producing ornamented crêpe paper web which consists, in leading the web onto an offset roll and printing therefrom a design on said web, in treating the web with liquid for conditioning it for the crêping operation, and finally leading the paper web over a drum and removing it therefrom by a scraper to crêpe the said web to vary the design carried thereby. 95 100

In testimony whereof I have affixed my signature.

JOHN L. PERKINS.