Aug. 8, 1933. N. F. BECKER 1,921,649

METHOD OF MOTTLING PAPER

Filed Nov. 10, 1932

Fig. 1

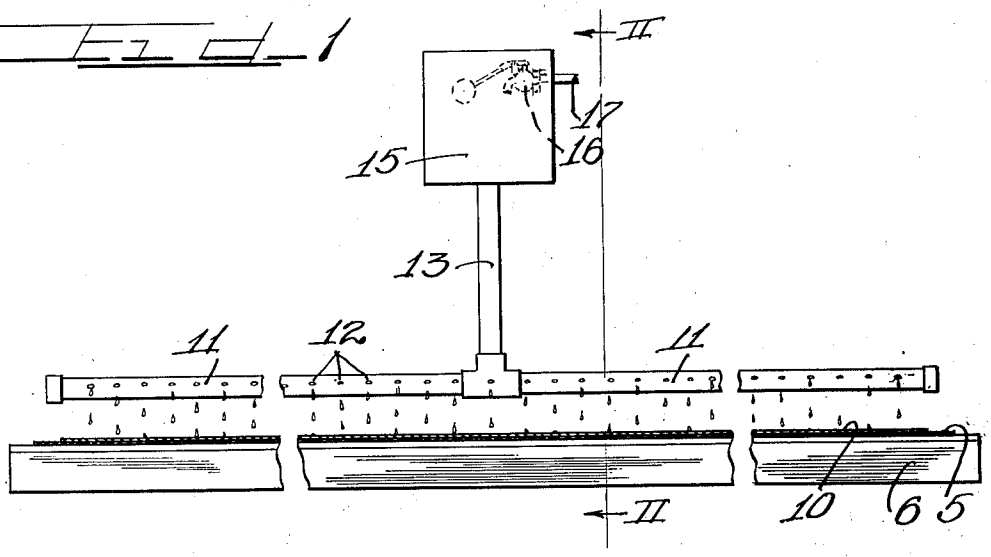


Fig. 3

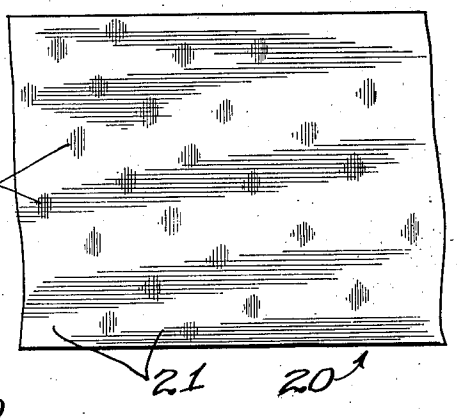
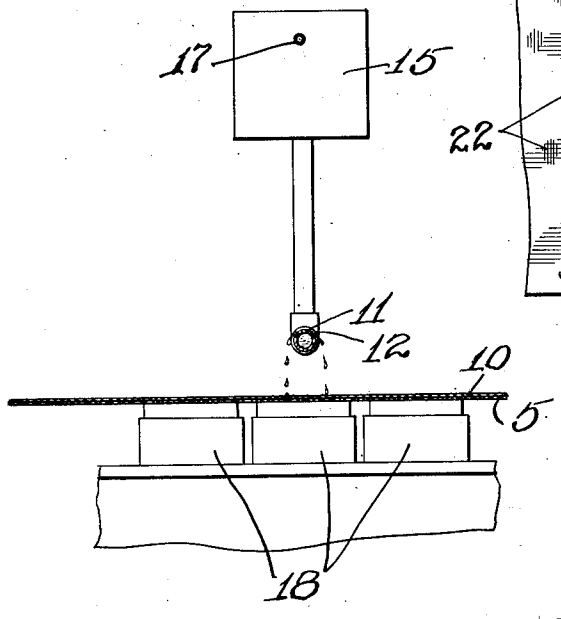


Fig. 2



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METHOD OF MOTTLING PAPER

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8 Claims. (Cl. 92—40)

This invention relates to an ornamental paper having a mottled effect and a method for its manufacture.

The ordinary process for the preparation of parchment paper consists in subjecting the wet paper web to the action of sulphuric acid just after its formation on the Fourdrinier machine. The free acid remaining after this treatment is then neutralized by an alkali and the sheet is afterward rinsed and dried.

I have now devised means whereby I can cause a parchmentized web to dry with a crinkled effect occurring in irregular patches over its surfaces. The patches have the additional quality of being thinner and more translucent than the rest of the surface thus giving the paper a "leopard's skin" appearance. The effect is very pleasing and ornamental, being quite different from other inexpensive, ornamental designs previously known for use on parchment and similar materials.

It is, therefore, an object of my invention to provide a cheap and attractive paper having a "leopard's skin" effect.

It is a further object of this invention to provide a paper having translucent and crinkled patches on its surface.

It is an additional object of this invention to provide a process for the production of this paper.

Other and further important objects of this invention will be evident from this specification and the accompanying drawing.

On the drawing:

Figure 1 is a section of a Fourdrinier machine with my device shown in elevation. This section is taken crosswise of the machine through the web at a point directly over the suction boxes.

Figure 2 is a sectional view taken along the line II—II of Figure 1 with parts shown in elevation and with the suction boxes shown diagrammatically.

Figure 3 is a plan view of a piece of paper which has been ornamented in accord with my process.

As shown on the drawing:

The reference numeral 5 denotes a portion of the wire of a Fourdrinier machine. The wire 5, as is customary, travels over a table 6 including suction boxes 18. A partially dried, parchmentized paper web 10 is supported by said wire forming web. A horizontal pipe 11 having one or more series of openings or perforations 12 along its upper surface is placed cross-wise of the forming web 5 at a point directly over the suction boxes 18. A pipe 13 connects said pipe 12 to a tank 15, in which water is maintained at a constant level by a float valve 16 which controls the flow of water from an inlet pipe 17. Any other arrangement which will give a constant hydraulic head or pressure, may be substituted for the tank 15.

A sheet of ornamental parchment 20 is shown in Figure 3. The portions 21 are finished in a manner which may be identical with ordinary parchment but, of course, may be modified if desired. The portions or spots 22 occur at each point where the drops of water from pipe 11 have contacted with the paper. These portions vary from the surface 21 in that they are more translucent, have a smoother surface, and are crinkled.

It is important that the drops of water be placed on the paper at a point directly over the suction boxes 18 and after the web 10 has been sucked free from surplus water. The exact point over the suction boxes which will produce the best results has to be determined by trial since it depends upon the speed of the machine, the nature of the pulp, and various other factors.

The head of water provided by the tank 15 should be just sufficient to throw a very weak stream from the openings 12 so that the streams will completely break up into drops before contacting with the web 10. Otherwise, the desired spotted or leopard skin effect will not be obtained. This process is not to be confused with processes in which the paper is sprayed with a finely divided liquid to produce an entirely different type of effect.

While I do not wish to be understood as limiting myself to any particular theory of operation, I offer the following explanation of my process: The drops of water strike the paper at a point directly above the suction boxes at which point the paper is still quite moist and not completely formed. At the point of impact, the moist pulp is forced outward and the water is immediately removed by the suction so that a thin spot remains in the paper at the point of impact which is surrounded by a thicker portion formed by the displaced pulp. The tendency of the resulting thin spot to crinkle depends largely upon the thickness of the stock being worked. The tendency to crinkle may be entirely absent when heavy paper is being produced.

It will be seen that this invention differs materially from previously known devices for producing paper of uneven thickness, and that it produces a paper in which the unevenness is of a unique and ornamental nature which cannot be produced by means of prior devices.

It will be understood that I do not intend to limit myself to the use of my invention in the manufacture of prachment paper since it is obvious that it may be used with a variety of papers to produce ornamental effects, the exact nature of which will depend upon the paper used. It will be understood that the steps in the process occurring before and after my invention may be the same as are used in the production of ordinary parchmentized or other papers.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. An ornamental parchment paper, spots occurring over the surface of said paper, said spots being thinner and more translucent than the remaining surface of said paper.

2. An ornamental parchment paper, spots occurring over the surface of said paper, said spots being relatively thin and crinkled, the remaining surface of said paper being relatively smooth.

3. An ornamental parchment paper having spots irregularly distributed over its surface, said spots being crinkled and more translucent than the remaining surface of said paper.

4. In the process of producing ornamental parchment paper, the steps of applying water to a portion of the surface of a parchmentized paper web in irregular patches, and drying said paper web by means of suction.

5. In a process for producing ornamental parchment paper, the steps of applying water in drops to the surface of a parchmentized paper web and immediately applying suction to said web.

6. In a process for producing ornamental parchmment paper, the steps of applying water in drops to one surface of a moist parchmentized paper web immediately applying suction to the opposite surface of said web and then drying said web.

7. An ornamental parchment paper having spots irregularly distributed over its surface, said spots being crinkled and more translucent than the remaining surface of said paper, said remaining surface being the natural surface of a parchment paper.

8. An ornamental parchment paper having spots irregularly distributed over its surface, said spots being crinkled and more translucent than the remaining surface of said paper, a relatively large proportion of the surface of said paper being the natural surface of a parchment paper.

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