Sept. 17, 1940. T. H. PARKHILL ET AL 2,215,335

PAPER MAKING

Filed Jan. 11, 1938

Fig. 1.

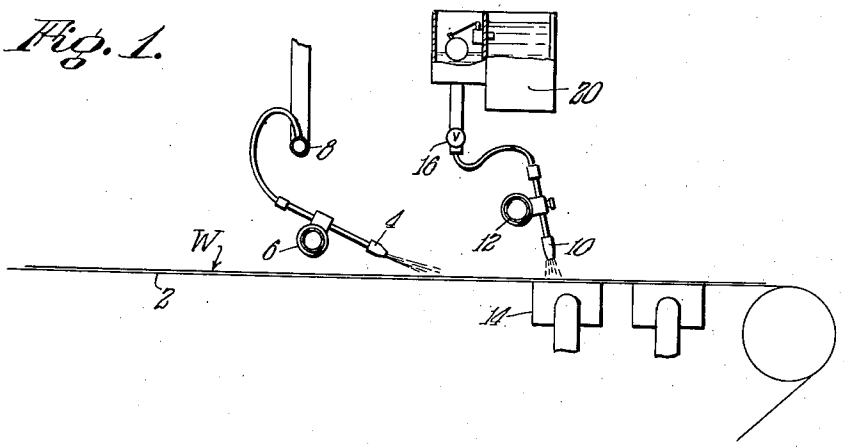
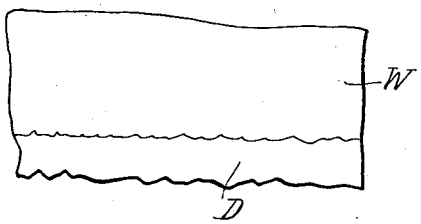


Fig. 2.



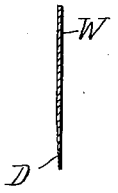


Fig. 3.

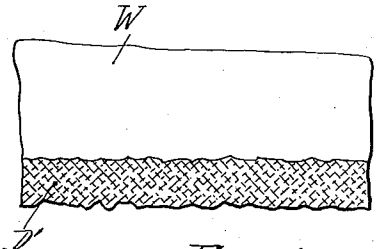


Fig. 4.

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PAPER MAKING

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Application January 11, 1938, Serial No. 184,416

2 Claims. (Cl. 92—40)

This invention relates to improvements in paper making and the principal objects of the invention are directed to the method of providing paper with a deckle edge or edges of a color contrasting with or different from that of the main body of the paper.

According to special features of the invention the so-called colored deckle edge is provided on a web in connection with the paper making operation which results in economy in that it is not necessary to separately handle the paper and the desired colored deckle edge effect is produced by reason of the particular condition of the paper.

In the accompanying drawing:

Fig. 1 is a side elevational diagrammatic view of a portion of a paper making machine to explain the novel features of the invention;

Fig. 2 is a plan view of a section of a paper web to explain certain features of the invention;

Fig. 3 is a sectional elevation on the line 3—3 of Fig. 2; and

Fig. 4 is a view similar to Fig. 2 to explain other features of the invention.

According to the practise of the invention, paper making material is delivered onto and carried by a carrier or foraminous making element where considerable of the water is removed to form a web. As an example, the paper making material may be delivered onto a carrier such as a Fourdrinier wire 2 or the same may be carried by a felt. As the carrier travels along in the direction of the arrow it supports the web of paper W.

At a point where the web W is substantially formed but somewhat moist, fibers are separated, displaced or removed at its edge or edges to produce a deckled effect. In some cases it may also be desirable to separate, displace, or remove fibers longitudinally and intermediate the side edges of the web to provide separate webs which will have deckled edges. The fibers may be separated, displaced or removed in various ways as for instance by directing jets or streams of fluid onto the web so as to act on the fibers.

In one way jets of water may be directed onto the web at its edge or edges in such a way that the fibers are displaced, separated, or removed from the web W so that it has an uneven and more or less irregular and fuzzy marginal edge D or edges with the thickness increasing inwardly from the edge as shown in Figs. 2 and 3. And a jet or jets may be directed onto the web intermediate its edges whereby separate webs are provided which may have the uneven, irregular or fuzzy edges.

A nozzle or nozzles for the jets such as indicated by 4 may be supported by a support member 6 disposed across the traveling carrier supporting the web and located to deckle the edge or edges of the web and act on the central portion if desired. The relative disposition of the nozzle or nozzles will determine the width of the separate web or webs into which the main web is to be divided if it is desired to separate the web into the narrower webs.

The nozzles will be connected to a source of fluid supply indicated by 8 and by the means described the web as it travels therepast may be provided with a deckle edge on either one or both marginal edges or the web may be divided into a plurality of webs having deckle edges which edges according to the invention are to receive color. To that end and preferably adjacent the beforementioned nozzles for producing the deckle edges effect there is means for applying color to the said deckle edges.

Such means may include other nozzles such as 10 or some suitable means for discharging a fluid or semi-fluid coloring substance which may include dye or the like. These nozzles are preferably supported by some means such as the support member 12 mentioned above and dispose in operative relation to a suction device such as a suction box 14. As the color is discharged onto or applied to the deckled edge portion or portions, the action of the suction box is such as to tend to drawn the color into and through the deckled edge portion or portions whereby the same becomes saturated or impregnated with the color.

The amount of color discharged may be varied or controlled by a valve 16, or in some way by varying the discharge orifice. To insure a uniform supply of coloring material the same may be supplied by a conduit or conduits leading from a constant level supply tank 20 or the like.

As previously stated the formed web is more or less moist for the deckling operation wherefor as the color is applied to the deckled edge portion or portions D, which absorb the color or become saturated thereby there is produced a colored deckle edge or edges D' as shown in Fig. 4.

As distinguished from a color stripe which would have a well defined marginal edge or edges the color in this case is disposed on the deckle edge rather unevenly or non-uniformly by reason of the spreading or bleeding of the color to some extent and which is accounted for by the

moisture content of the web and the way of applying the color.

It is possible therefor to provide an edge portion or portions for a web or webs which not only has the unevenness, featheriness, or fuzziness that characterizes a deckle edge but which is colored to enhance the deckle effect and provide a new and pleasing effect with the said color extending through the portion so that the web has the same color on opposite sides or it may vary if desired.

The color is dispersed more or less unevenly as described by reason of the moisture in the paper which is desirable and the bleeding or spreading of the color may be held within desired limits since it is applied to the deckled edge when under the influence of the suction which may be varied to bring about the desired saturation or impregnation.

According to the invention it is possible to confine the color to the vicinity of the deckle edge portion or portions where it is desired, provide color at opposite sides of the web, and enhance the deckle effect by the application of color.

While we have described the invention in great detail and with respect to a preferred form thereof, it is not desired to be limited thereto since many changes and modifications may be made therein without departing from the spirit and scope of the invention. What it is desired to claim and secure by Letters Patent of the United States is:

1. The method of producing paper having a colored deckle-edge which consists in, moving a web of wet paper-making material of a certain color longitudinally on a paper-making element, removing some of the fibers of the paper making material from the web along its longitudinal side edges to provide deckle-edge portions which are of less thickness than the rest of the web and have irregular marginal edges, then applying liquid coloring material of a different color than said paper-making material to said deckle-edge portions only of the web while the same is still moving and wet, and substantially simultaneously with the latter step subjecting said deckle-edge portions to suction to draw said coloring material therethrough.

2. The method of producing paper having a colored deckle-edge which consists in, moving a web of wet paper-making material of a certain color longitudinally on a paper-making element, removing some of the fibers of the paper-making material from the web along a longitudinal line intermediate its side edges to provide deckle-edge portions which are of less thickness than the rest of the web and have irregular marginal edges, then applying liquid coloring material of a different color than said paper-making material to said deckle-edge portions only of the web while the same is still moving and wet, and substantially simultaneously with the latter step subjecting said deckle-edge portions to suction to draw said coloring material therethrough.

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