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METHOD OF PREVENTING EXPANSION AND CONTRACTION OF PRINTING PAPER

Joseph L. Kelly and Rudolph Brenner, St. Louis, and John P. Hoffer, Kirkwood, Mo.

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4 Claims. (Cl. 91-68)

This invention relates generally to methods of treating paper to which printed impressions are to be applied, and more specifically to an improved method which prevents such paper from absorbing undesired moisture and exuding necessary moisture contained therein, the predominant object of the invention being to provide a method, and improved means for putting the method into effect, through the use of which the pores at the edge portions of sheets or rolls of such paper may be sealed, whereby the absorption or exudation of moisture by said paper is prevented.

Prior to this invention considerable trouble has been occasioned in the printing art by the fact that paper to which printed matter is to be applied will absorb moisture when exposed to atmosphere containing an excess of moisture, whereby said paper is caused to expand. This situation has been particularly troublesome in connection with multicolor printing, where the paper is passed through presses a plurality of times to receive printed impressions in different colors. In producing printed matter where more than one color is employed, it is usually absolutely necessary that the impressions in one color register precisely with certain points on the surface of the paper. The printing surfaces of the presses are set so that this precise registration is obtained when sheets or rolls of paper of normal characteristics are used, but it frequently happens that after the positions of the printing surfaces are established the weather will change so that the moisture content of the atmosphere is higher than normal. This condition results in the paper to which the printed matter is to be applied absorbing such amount of moisture as to cause said paper to expand, with the result that the surface of the paper is shifted with respect to the position it should assume if proper registration of colors is to be obtained, and when the impressions are made the colors are not properly registered.

Practically the same situation prevails in the situations where there is a deficiency of moisture in the atmosphere as, when this is so, the paper exudes the necessary moisture contained therein, with the result that the paper contracts, thus destroying the proper registration relation of the surface of the paper with respect to the printing surfaces.

In view of the foregoing, we have devised the improved method and solution disclosed herein, which serves to seal the pores of the

paper at and adjacent to the marginal edge thereof, and because moisture is absorbed into the paper or is exuded thereby at its marginal edge, the moisture content of the paper is maintained uniform.

The improved solution employed in putting our improved method into effect is preferably comprised of the following ingredients or their equivalents in the approximate proportions indicated:

	Parts
Paraffin oil	5
Beeswax	8
Paraffin	3
Turpentine	8
Ether	150
Chloroform	250

In preparing the solution the beeswax and paraffin are converted into a fluid state by applying heat thereto, after which all of the ingredients are thoroughly mixed together.

In the use of our solution and in following out the improved method disclosed herein, the solution is applied to the paper by spraying or otherwise depositing same on the edge portions of the paper. When the paper is in the form of stacks of flat sheets the solution is sprayed or otherwise applied to the marginal edge of the stack of paper, and when said paper is in the form of a roll the solution is sprayed or otherwise applied to the ends of the roll. The solution penetrates into the paper a distance of approximately one-eighth of an inch, and serves to very effectively and completely close all of the pores of the paper at the marginal edge of said paper. In other words, the paper is provided with what amounts to an insulated edge portion which is impervious to moisture, so that moisture may not pass into or out of the paper through the edge thereof.

In the performance of the function of the solution, the beeswax and paraffin serve to seal the pores of the paper, the paraffin serving also to prevent the sheets or layers of paper from sticking together. The turpentine acts to maintain the beeswax in a fluid state, and the chloroform and ether act as carrying agents and solvents. The paraffin oil serves to control the penetration of the solution into the paper.

We claim:

1. The herein described method of treating paper in stacks or rolls which comprises introducing a solution into the pores of said paper by applying said solution to the edge portions

thereof for the purpose of sealing the pores of said edge portions of said paper, said solution including as elements thereof amounts of beeswax and paraffin oil, said beeswax serving to seal the pores of the paper and said paraffin oil serving to control penetration of the solution into the pores of the paper.

2. The herein described method of treating paper in stacks or rolls which comprises introducing a solution into the pores of said paper by applying said solution to the edge portions thereof for the purpose of sealing the pores of said edge portions of said paper, said solution including as elements thereof amounts of beeswax, paraffin, and paraffin oil, said beeswax and paraffin serving to seal the pores of the paper and said paraffin oil serving to control penetration of the solution into the pores of the paper.

3. The herein described method of treating paper in stacks or rolls which comprises introducing a solution into the pores of said paper by applying said solution to the edge portions thereof for the purpose of sealing the pores of said edge portions of said paper, said solution

including as elements thereof amounts of beeswax, paraffin, and paraffin oil, said beeswax and paraffin serving to seal the pores of the paper and said paraffin oil serving to control penetration of the solution into the pores of the paper, and including in said solution an agent for maintaining the beeswax in a fluid state.

4. The herein described method of treating paper in stacks or rolls which comprises introducing a solution into the pores of said paper by applying said solution to the edge portions thereof for the purpose of sealing the pores of said edge portions of said paper, said solution including as elements thereof amounts of beeswax, paraffin, and paraffin oil, said beeswax and paraffin serving to seal the pores of the paper and said paraffin oil serving to control penetration of the solution into the pores of the paper, and including in said solution agents for maintaining the beeswax in a fluid state and which serve as carrying agents and solvents.

JOSEPH L. KELLY.
RUDOLPH BRENNER.
JOHN P. HOFFER.

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