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METHOD FOR TREATING PYROXYLIN COATED PAPER TO ELIMINATE CURL

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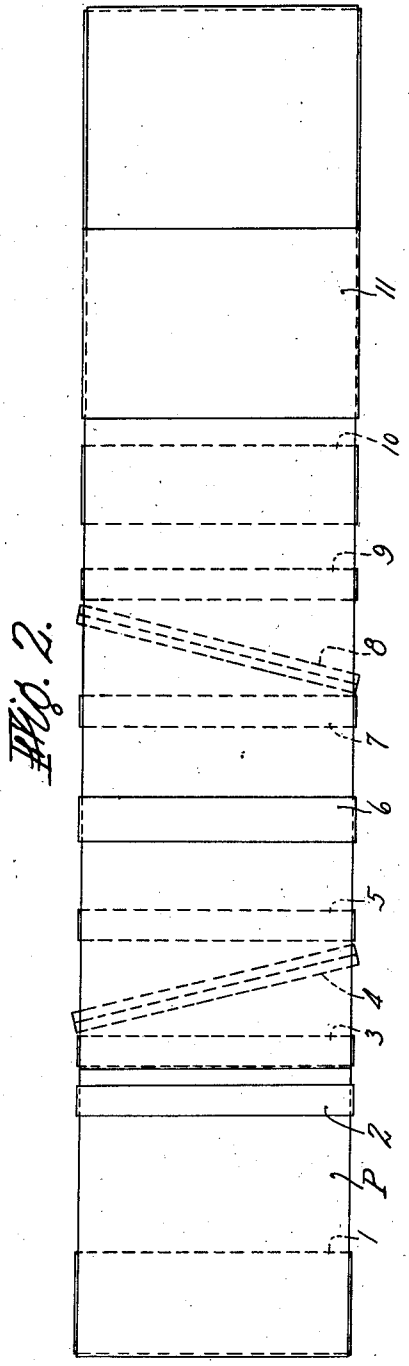


Fig. 2.

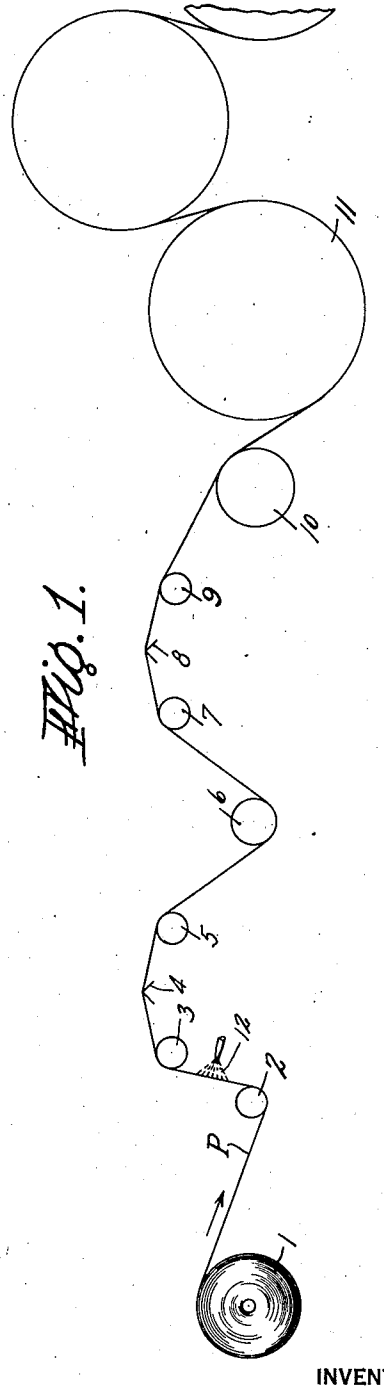


Fig. 1.

INVENTOR
RUSSELL S. BRACEWELL
BY
Clapin + Neal
ATTORNEYS

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METHOD FOR TREATING PYROXYLIN COATED PAPER TO ELIMINATE CURL

Russell S. Bracewell, South Hadley, Mass.

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4 Claims. (Cl. 91—68)

This invention relates to a method of treating coated paper for destroying the curling tendency thereof. The tendency to curl occurs with paper coated only on one side, and the present method deals more particularly with such paper having a flexible coating such as pyroxylin or lacquer, modified starch coatings, casein, and other similar waterproof and flexible coatings.

I am aware of the common practice of "breaking" gum coated papers over breaker bars, but as far as I know this former method has always been carried out with the coated paper in its normally dry state. It has been found however that papers coated with a flexible coating, such as pyroxylin or lacquer, when treated by the usual method of being dragged over breaker bars in a dry condition are not permanently cured of the tendency to curl. For a short time after treatment the curl seems to have been taken out, but in the marketing of this product and in cutting the same up into sheets it is the common experience that the tendency to curl revives in time. This revival of the curl however does not occur in the case of the usual gum coated papers which have for many years been successfully broken to eliminate curl by dry breaking. Possibly the explanation of this is that a gum coating not being flexible is actually cracked into a plurality of discontinuous minute sections by the action of the breaking bars whereby the tension on the paper is relieved and thus the tendency to curl is destroyed. With a flexible pyroxylin coating however, the breaker bars apparently do not actually crack up the surface coating but merely bend it and therefore its tension on the paper for curling is not permanently eliminated.

I have discovered that paper with a flexible pyroxylin coating, can have its tendency to curl permanently destroyed by previously moistening the uncoated side of the paper before dragging it over the breaker bars. While I propose no certain theory of why this occurs, a possible explanation may be that by moistening the uncoated side of the paper prior to breaking, the paper fibers become sufficiently loosened so as to reset under the breaking operation and reaccommodate themselves to any strain imposed by the coating. In any event pyroxylin coated papers will, if thus treated, be permanently cured of the tendency to curl.

The apparatus for carrying out the present process may be made up of well known devices and in the drawing such apparatus is shown in diagrammatic form sufficient to make the operation of the present method clear.

Referring to said drawing,

Fig. 1 is a side view of the paper being treated while in a continuous run from a supply roll over guiding rolls, breaker bars, to a cylinder drier; and

Fig. 2 is a partial plan of the same showing the oblique and oppositely inclined positions of the breaker bars.

In said drawing 1 indicates the usual let-off supply roll for the paper to be treated. The web of paper P travels in the direction of the arrow successively around guide rolls 2, 3, over breaker bar 4, guide rolls 5, 6, 7, breaker bar 8, guide rolls 9, 10, to the first of a series of drying cylinders 11. As shown in Fig. 2, the breaker bars 4 and 8 are set obliquely to the transverse line across the paper and at opposite angularity thereto. It will also be noted that this angularity to the transverse line of the paper is at an acute angle in both instances. It will also be observed from Fig. 1 that the angularity of the web P passing over the breaker bars 4 and 8 is at an obtuse angle. In carrying out the present process a sharp bend of the web in passing over the breaker bars is not necessary and greater speed of operation is possible with the obtuse angle bend as shown.

At some position in front of the first breaker bar 4 and preferably as indicated at 12 in Fig. 1, a moistening device is located for projecting a finely atomized spray of water against the uncoated side of the paper P. Other means might be equally well employed for so moistening the paper. For some kinds of flexible coated paper as for instance lacquer coated glassine, the amount of moisture used may be less and steam projected against the uncoated side of the paper is found to produce a sufficient moistening thereof.

The web, after being moistened at 12, has most of the water scraped off from the under side thereof by the breaker bar 4. This uncoated side of the paper however will be still moist after passing over the breaker bar 8 and therefore is preferably dried over the heated cylinders of a drier indicated at 11. After passing through the drier the paper may be wound up in a roll for shipment or storage.

I claim:

1. The method of treating pyroxylin coated paper to lessen the tendency of the same to curl, said paper having been coated on one side only, which consists in first moistening the uncoated side of the paper, then dragging the uncoated and moistened side of the paper over one or more

breaker bars and finally drying said uncoated side of the paper.

2. The method of treating coated paper to lessen the tendency of the same to curl, said paper having been coated on one side only with a waterproof and flexible coating, which consists in first moistening the uncoated side of the paper only, then dragging the uncoated and moistened side of the paper over one or more breaker bars and finally drying said uncoated side of the paper.

3. The method of treating coated paper to lessen the tendency of the same to curl, said paper having been coated on one side only with a waterproof and flexible coating, which consists in first moistening the uncoated side of the paper only, then dragging the uncoated and moistened side of the paper successively over a pair of breaker bars in oppositely inclined positions oblique to the transverse line of the paper and finally drying said moistened side of the paper over heated cylinders.

4. The method of treating coated paper to lessen the tendency of the same to curl, said paper having been coated on one side only with a waterproof and flexible coating, which consists in first moistening the uncoated side of the paper only, then dragging the uncoated and moistened side of the paper successively over a pair of breaker bars in oppositely inclined positions oblique to the transverse line of the paper, the angularity of travel of said paper over said breaker bars being at an obtuse angle and the angularity of said breaker bars to the transverse line of said paper being at an acute angle, and finally drying said moistened side of the paper over heated cylinders.

RUSSELL S. BRACEWELL.