

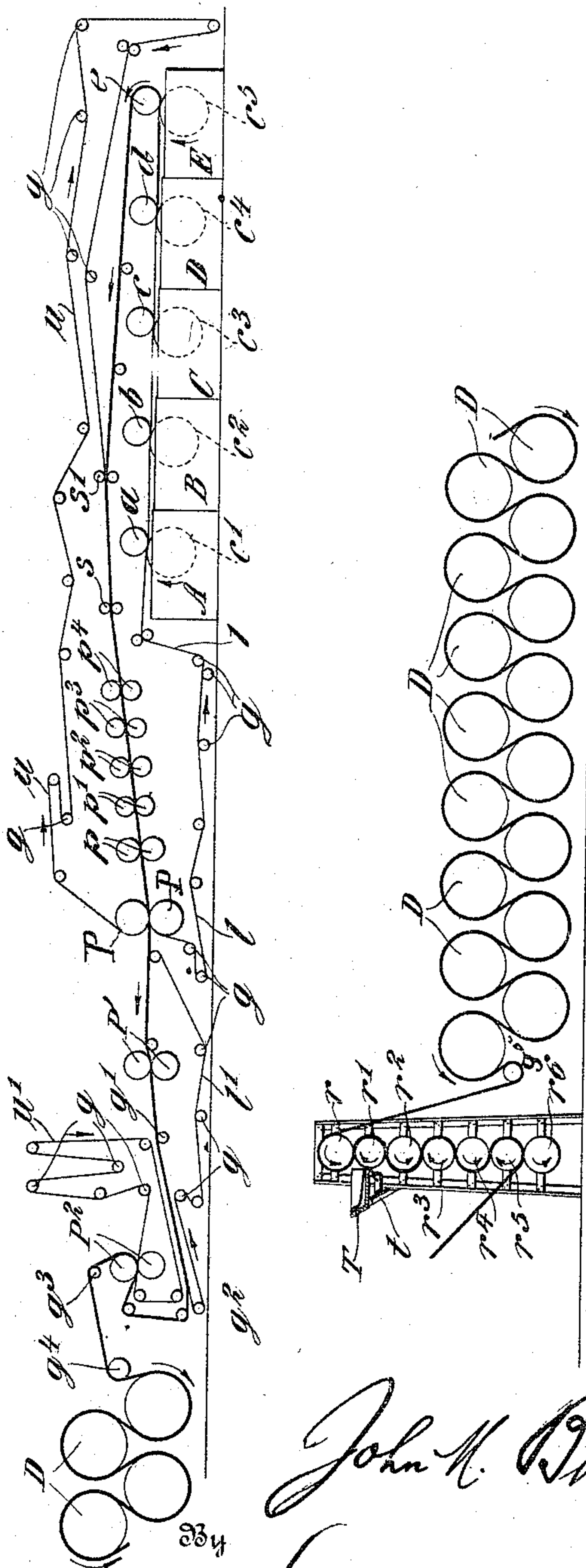
J. M. BURBY.

BLOTTING.

APPLICATION FILED MAR. 12, 1910.

994,667.

Patented June 6, 1911.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## BLOTTING.

994,667.

Specification of Letters Patent.

Patented June 6, 1911.

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*To all whom it may concern:*

Be it known that I, JOHN M. BURBY, a citizen of the United States; and a resident of Elizabeth, county of Union, and State of New Jersey, have invented a certain new and useful Improvement in the Manufacture of Blotting, of which the following is a full, clear, and exact specification.

My invention relates to paper making and consists of the improved manufacture of blotting, whereby such blotting is produced in one operation, the gluing or pasting of the lining upon the blotting being entirely dispensed with, and a superior product obtained at less cost and less expenditure of labor and material.

Blotting is produced of macerated rags and soda pulp, also raw cotton sweepings from gin mills being utilized in its manufacture. To produce coated blotting, for which there is a large demand, it is necessary to cover the surface, upon which this coating is to be applied, by a layer of material upon which the coating is applied, because of the absorbent nature of blotting no coating can be applied immediately upon it, as the coating composition would percolate it and spoil the blotting by making it unfit for its intended use. This non-absorbent layer is called "the liner" and must be made of material capable of holding the coating composition while it is being applied thereon. Heretofore the blotting and the lining was produced in separate sheets completely finished on the respective machines, and made up in rolls. These rolls are then placed on lining machines, where the "liner" is affixed to the blotting by glue, starch or casein paste, and then the lined blotting run into the coating machine. Being thoroughly familiar with the manufacture of blotting and also of all kinds of so-called "combination boards" which are composed of two or more layers of different materials, I have experimented with the object in view, to determine whether the lining layer, required to be applied upon blotting to make it suitable for coating, could not be applied thereon during the process of manufacture of the blotting, and have produced blotting with a layer of non-absorbent material, suitable to receive the coating, safely united with the blotting, the blotting and the lining sheets being felted together in the process of its manufacture.

Such machines, as are now used for the manufacture of the so-called "combination boards," are well suitable for the manufacture of my improved blotting, if provided with the requisite number of vats and cylinders. A machine of this kind is shown diagrammatically in a sectional view on the accompanying drawing, wherein—

A, B, C, D and E designate the vats, C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> and C<sup>5</sup>, the cylinders, mounted to revolve therein, and *a*, *b*, *c*, *d* and *e* their respective couch-rolls. The felts are designated by *u* for the upper and *l* for the lower, and the direction of their travel is indicated by arrows.

Reference letters *p*, *p'* to *p*<sup>4</sup> and P, P', P<sup>2</sup>, designate the press-rolls, *s* and *s'* the squeeze-rolls, *g* the guide- and stretch-rolls for the felts; reference letters D the driers, *r*, *r'* to *r*<sup>6</sup>, the calender rolls, T the coating trough, and *t* the framing therefor.

For the purpose of explaining the process of manufacture the so-called "wet end" of the machine needs to be considered first. To produce a lined blotting on such a "five-cylinder" machine as shown in the drawing, the vats A, B and C (for instance) may be used for the body of the blotting and the vats D and E for the liner. The order may be reversed, that is to say, the vats A and B may be used for the liner and vats C, D and E for the blotting. In the first instance the "liner" will be run on the upper, and in the second, on the lower surface of the body of blotting. There is no particular advantage in either arrangement, except as it may suit the location of the coating apparatus; it is, however, preferable to arrange the forming of the sheets so that the liner layers will be applied upon the blotting and not the blotting layers upon the liner. The stuff used for blotting is necessarily coarser and more elastic, and consequently, when the lastly made and only once compressed layer of the blotting is brought in contact with the yet uncompressed stuff on the cylinder from which the first layer of the liner is formed, the interfelting of the fibers is facilitated, and a more intimate and stronger binding together of the layers is effected. For the same reason it is also preferable to use pulp, or news material, for the layer of the liner coming next to the body of the blotting, manila material being more desirable for the surface layer



of the liner whereon the coating is applied; this is, however, not essential, my experiments and experience having demonstrated, that an equally satisfactory result is obtained if the "liner" is produced of one kind of material, provided that the supply of the stuff in the vats, from which the liner layers are produced, is properly regulated.

The material (stuff), of which the blotting and the lining are to be made, is delivered into the vats A, B, C, etc., and from there taken up by the lower felt *l* as it runs over the cylinders, being pressed thereon by the respective couch-rolls *a*, *b*, *c*, etc. In this way the composite sheet of blotting and lining is successively built up, the component layers of each, and the sheets of blotting and lining being felted together. The compound sheet thus produced, that is, the body of the blotting with the liner applied thereto by interfelting the fibers of the first liner layer with the last blotting layer, is then compacted between the upper and lower felts, as it is run between the press-rolls *p*, *p'*, *p*<sup>2</sup>, etc., *p*<sup>5</sup>, a large proportion of the water, contained therein, having been squeezed out by rolls *s* and *s'*. The yet wet sheet is then carried, supported upon the auxiliary felt *l'*, through press-rolls *P* and over guide-rolls *g'* and *g*<sup>2</sup>, between press-rolls *P*<sup>2</sup> and from there over guide-rolls *g*<sup>3</sup> and *g*<sup>4</sup>, on to the driers *D*, *D'*, etc. By the time the sheet leaves the lower felt *l'*, it has attained sufficient cohesive strength to stand such strain as is required to draw it, by press-rolls *P*<sup>2</sup>, over the guide-rolls *g'* and *g*<sup>2</sup>. The auxiliary upper felt *u* is employed to act as a carrier for the composite sheet during this transmission. The sheet is then drawn upon and between the driers *D*, a sufficient number of which must be provided in the machine, to completely dry the composite sheet, evaporate all moisture therefrom, during its passage. From the driers the composite sheet is carried over guide-roll *g*<sup>5</sup> on to the upper roll *r* of the first calender stack, where it is finished. When carried over from the driers to the calender stack, the composite sheet is in condition to have the coating applied thereto, and for this purpose, a trough *T*, supported in a suitable framing *t*, with its open side abutting against one (preferably the second) of the upwardly turning rollers of the calender stack, is used. The coating composition, which may be of any desired color, is

fed into the trough by gravity from a tank located above, or it may be pumped into it. As the composite sheet then progresses through the calender stack, the coating composition is pressed into and onto its liner layer by the rolls, and forms a substantial, non-permeable coating of a very smooth and even surface. The porosity and softness of the blotting body is not affected thereby, as the coating does not permeate through the liner. The coated surface of such composite blotting sheet may also be suitably grained, which is frequently desired for enhancing the effect of the printing or of the embellishment with pictures and otherwise, which is desired when such coated blotting is used for advertising purposes. The coated blotting thus produced is superior to that in which the liner is glued or pasted onto the blotting sheet. Its coated surface is equally smooth and firm, suitable for printing thereon, or otherwise embellishing it, the product is, however, more flexible, the disturbing element of the glued product, the stiff and brittle layer of the glue, paste, or other cement, being absent, and thereby the tendency of the glued product, to crack or break, and to split and separate at the joint of the blotting sheet to the thin, hard and brittle layer of glue, or paste, is entirely obviated.

My improved blotting can also be produced and used without coating, the "liner" produced upon the blotting by my improved process felting, being suitable therefor, and sufficiently dense to hold the ink or coloring matter, used in the print or pressing, from penetrating through it into the blotting, also sufficiently smooth, after the product is passed through the calender stack, to print or produce embellishments thereon, with ink or colors.

I claim as my invention:

A composite sheet of blotting, having a non-absorbent liner applied on one surface thereof, the non-absorbent liner being united with the absorbent body of the blotting by an intermediate layer of news pulp stock the fibers thereof being interfelted with the fibers of the non-absorbent liner and of the blotting.

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