

(No Model.)

C. C. MACBRAIR.

MACHINE FOR APPLYING WATERPROOFING TO PAPER.

No. 532,172.

Patented Jan. 8, 1895.

Fig. 1.

Fig. 2.

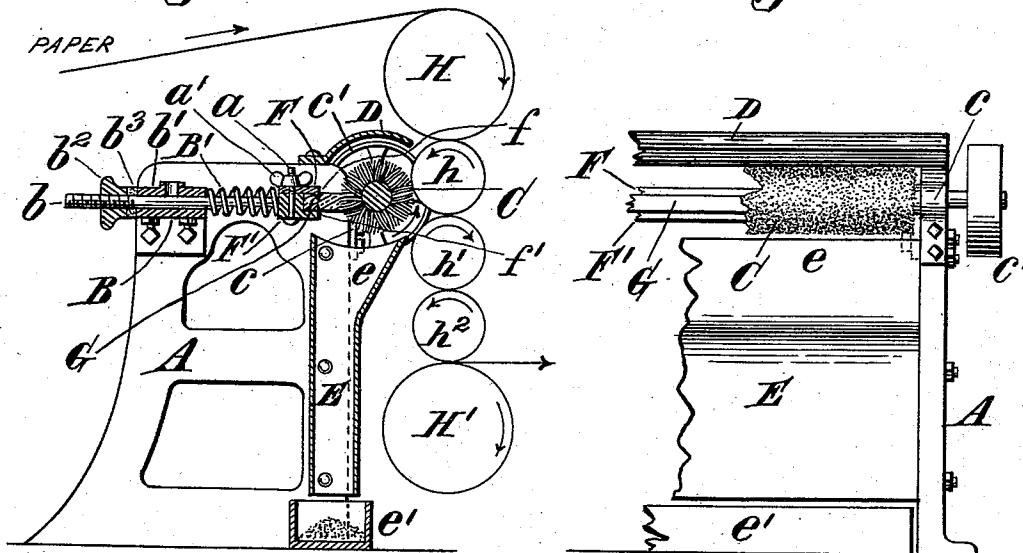
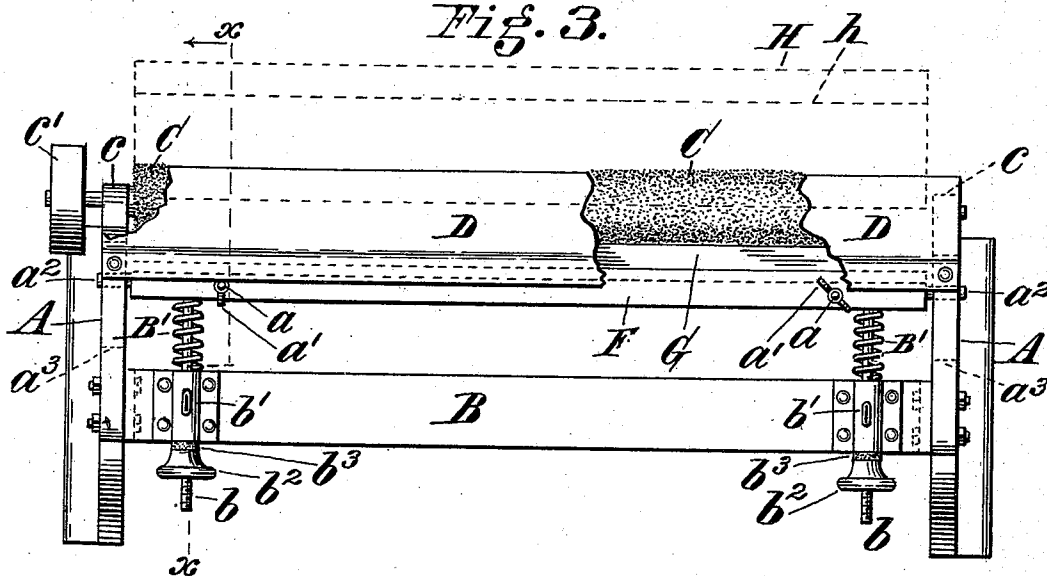


Fig. 3.



Attest

Wm. Schuchardt
J. Robinson

Inventor
Charles C. Macbair,
by John Elias Jones,
his Attorney.

UNITED STATES PATENT OFFICE.

CHARLES C. MACBRAIR, OF WESTWOOD, OHIO.

MACHINE FOR APPLYING WATERPROOFING TO PAPER.

SPECIFICATION forming part of Letters Patent No. 532,172, dated January 8, 1895.

Application filed July 2, 1894. Serial No. 516,298. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. MACBRAIR, a citizen of the United States, residing at Westwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Machines for Applying Waterproofing to Paper and other Fabrics, of which the following is a specification.

My invention relates to that class of paper coating-apparatus in which a rotary cylindrical brush is used to apply the coating to the surface of paper and other fabrics, and it consists in the novel features of arrangement, construction, and operation, hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation taken on line x, x , of Fig. 3, showing my device complete in connection with a stack of calender-rolls, the latter being shown simply in diagram without their framework or mountings; Fig. 2, a broken front elevation of the same, but omitting the stack of calender-rolls; and Fig. 3, a plan of my machine, the top guard or fender thereof being broken away in several places to show the brush and its bearing at one end, and the calender-rolls being also shown (in dotted lines only, to avoid obscuring the view to any of the parts.)

A represents each of the two side supporting-frames, having a connecting cross-bar or stay B.

C is a rotary, cylindrical brush, bearing in brackets c secured at the upper fore-ends of frames A, and provided with a driving-pulley c' .

D is a forwardly-projecting fender or guard, over the brush C, its opposite ends being suitably secured to the top of frames A.

E represents a down-chute, suitably mounted between the said two side-frames, and provided with a hopper-shape top e disposed under said brush. e' is a box or other receptacle under said chute E.

F represents an upper clamp-bar, and F' a lower clamp-bar, between whose inwardly-lipped fore edges f and f' , respectively, a longitudinal bar or block G composed of paraffine or other similar waterproofing material, in a solid state, is firmly held, a pair or more of screws a having thumb-nuts a' being used to

unite said clamp-bars over said paraffine bar, as best seen in Figs. 1 and 3.

a^2, a^3 , represent pins projecting from the opposite ends of the lower clamp-bar F' into longitudinal slots or ways a^3 made in the side-frames A, said slots being shown in dotted-lines in Fig. 3.

b, b , represent rods or bars projecting rearwardly from the said lower clamp-bar F' , and taking through slide-boxes b' on said cross-stay B. These rods are screw-threaded at their outer ends to accommodate hand-wheels or nuts b^2 , suitable cushions or elastic-washers b^3 being first placed on said rods ahead of said hand-wheels, as best seen in Figs. 1 and 3.

B', B' , are spiral-springs surrounding the rods b between said clamp and cross-stay, and having their expansive-action controlled by said hand-wheels, which latter are run up and down on said rods to bring the working-face of the paraffine-bar into proper contact with the face of brush C.

H, h, h', h^2 , and H' represent the several rolls in a vertical series or stack of ordinary calender-rolls used in connection with a paper-making machine, (the latter not being shown, as it is deemed unnecessary herein). A continuous strip of paper is shown leading from any source of supply, such as a continuous roll, or the paper-making machine, preferably the latter, and thus in the original course of manufacture, the arrows adjacent thereto and in connection with the calender-rolls indicating the direction of movement thereof.

My machine is arranged just ahead of said calender-rolls, with its rotary-brush C in contact with the paper as it passes over one of the first rolls,—say roll h ,—the latter forming a backing or foundation against which the bristles of said brush may properly bear in applying the paraffine.

In the operation of my machine, the paper travels down through the stack of calendars as usual, but when it reaches, say, roll h , one face thereof is treated to a coating of paraffine or other suitable water-proofing-material through the instrumentality of the transverse, rotary cylindrical-brush C, the latter being charged from a transverse bar or block of paraffine against which it revolves in intimate contact. The bristles in the face of

the brush are preferably moderately stiff, in order to properly take only a very small quantity of the paraffine from the face of the solid block or bar G and likewise deposit or apply
 5 said small quantity to the surface of the passing paper. By making the bar of paraffine movable toward and from the brush, and having the brush remain at the same distance from the roller, or surface of the paper, the
 10 amount of material being applied to the paper can be regulated by simply adjusting the position of the material relatively to the brush. Brush C revolves in an opposite direction to that of the advance movement of
 15 the paper and at somewhat greater surface velocity, so that the paraffine carried on its face shall be both deposited upon the paper and rubbed into or given the desired surface. The surface or polish of the material upon
 20 the paper is also increased by applying pressure to the paper after the application of the material, as for instance, by passing the paper between the remaining rolls of the stack, as shown in the drawings. The block of paraffine
 25 is preferably held up to its work against the brush in a yielding manner by means of the said rods *b* and expansion-springs B', the hand-wheels on the rods being turned in the desired direction to make due allowance for the width
 30 or depth of the paraffine-bar and for its consumption or wearing away in said work. The lateral pins *a*², playing in the slots *a*³, properly support the clamp-bars and enable them to be adjusted in either direction forwardly or rear-
 35 wardly, without hinderance, to suit the condition or size of the paraffine-bar. The elastic-washers *b*³ are provided on the rods *b* for cushioning the clamps and the paraffine-bar against reaction after any compression of said
 40 springs B'. Said hand-wheels and the spring-controlled rods facilitate the adjustment of the paraffine-bar, giving it the proper pressure against the brush at all times and presenting it uniformly thereto. It is obvious
 45 that, one or more sets of said hand-wheels and spring-rods, and, also, one or more of said clamp-screws, could be placed intermediate those on the cross-bar or stay and clamp-bars, respectively, where the paper is made in great
 50 width, as customary in manufacture.

The device is especially adapted to the waterproofing of straw-paper for wrapping-
 purposes, but it is evident and intended that it may and shall be used in waterproofing
 55 Manila and other papers, printed labels, and other fabrics and suitable materials desired to be so surfaced.

It is obvious that the brush may be mounted in ordinary adjustable bearings, to make due
 60 allowance for any wear of the bristles. The fender D is provided to prevent upward escape of any fine particles or powder arising from the contact of the brush with the paraffine-bar; and the down-chute E, *e*, is also provided to convey such powder to the receptacle

e' below, as best seen in Fig. 1, from whence it may be removed to be remelted and cast into blocks or bars for use again, and thus preventing accumulations under the machine, and especially any waste.

It is also obvious that other materials than paraffine may be used in the solid state in my machine, for waxing or waterproofing purposes, and a revolving-brush, having moderately stiff, or even stiff, bristles, employed to
 75 remove, carry, and deposit the same in a thin film on the surface of paper or other fabrics.

It is still further obvious that the other surface of the paper could be waterproofed with said thin film of paraffine from a solid bar or
 80 block, by means of my brush and accompanying devices duplicated or placed on the fore side of the calender-stack, with said brush in contact with the paper as it passes downward over the roll *h'*.

I claim—

1. The combination, with a stack of calender rolls, of a rotatory brush adjacent to one of the rolls, other than the last roll, a spring actuated clamp adjacent to the brush, and
 90 means for adjusting the distance between the clamp and the brush independently of the distance between the brush and the stack of rolls, substantially as set forth.

2. The combination, with a stack of calender rolls, of a frame adjacent thereto, a brush journaled in the front of the frame, and a cross-bar at the rear of the frame provided with slide boxes, a reciprocatory rod through each
 100 box, the rear end of which is provided with an adjusting hand wheel, a clamp secured to the front ends of the rods, and a spring upon each rod between the bar and the clamp, substantially as set forth.

3. The combination, with a stack of calender rolls, of a frame adjacent thereto, the sides of the frame being each provided with a slot, a brush journaled in the front of the frame, a cross-bar at the rear of the frame provided with slide boxes, a reciprocatory rod through
 110 each box, the rear end of which is provided with means for adjusting the position of the rod in the box, a clamp at the front ends of the rods, a pin in each end of the clamp projecting through the slots of the frame, and a
 115 spring upon each rod between the clamp and the cross-bar, substantially as set forth.

4. The combination, with a stack of calender rolls, of a rotatory brush adjacent to one of the rolls, a clamp for holding the material
 120 adjacent to the brush, a fender over the brush, and a down chute below the brush, substantially as set forth.

In testimony of which invention I have hereunto set my hand.

CHARLES C. MACBRAIR.

Witnesses:

JOHN E. JONES,
 J. C. ROBISON, Jr.