

(No Model.)

2 Sheets—Sheet 1.

P. GROEBER.
MANUFACTURE OF WALL PAPER.

No. 536,077.

Patented Mar. 19, 1895.

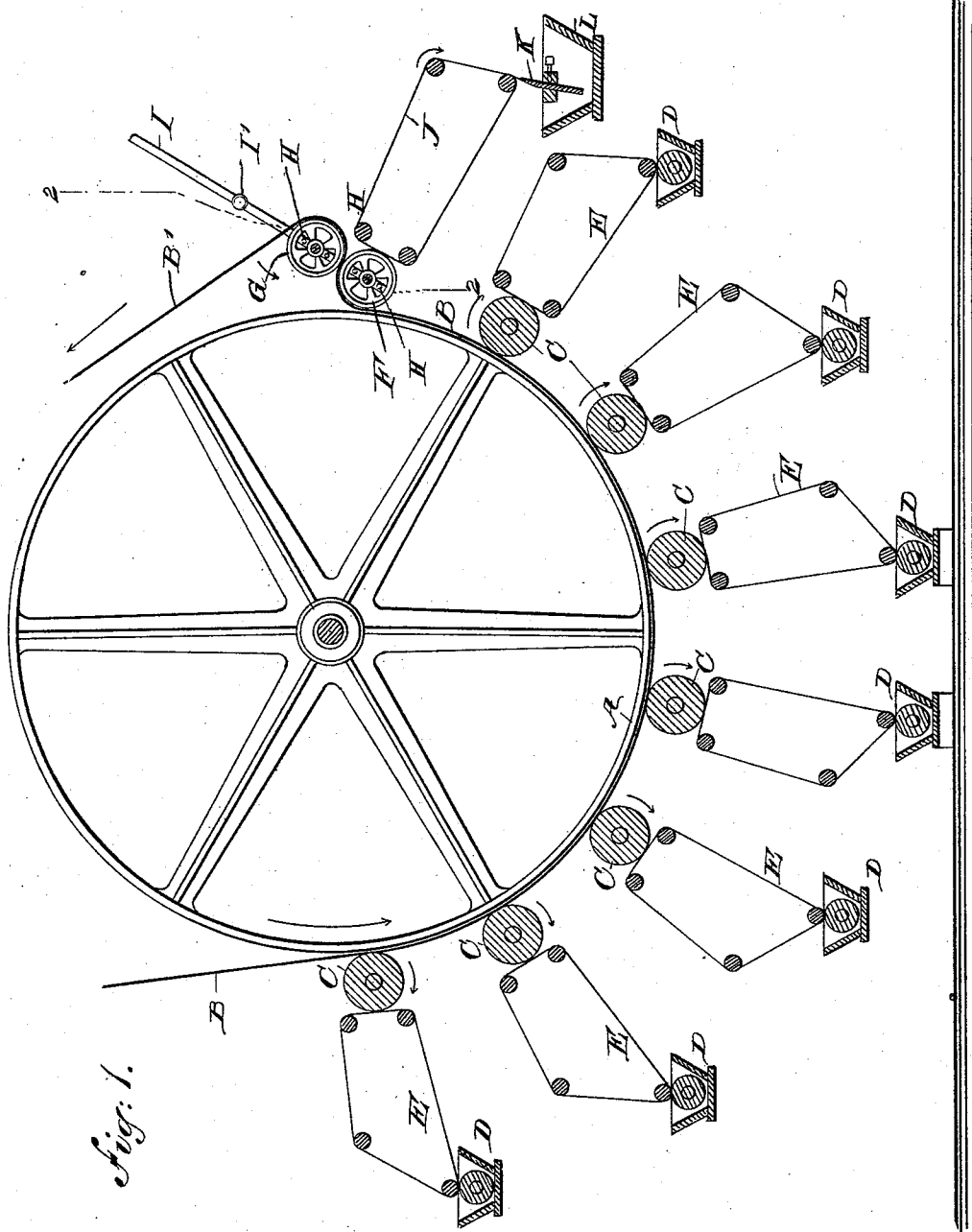


Fig. 1.

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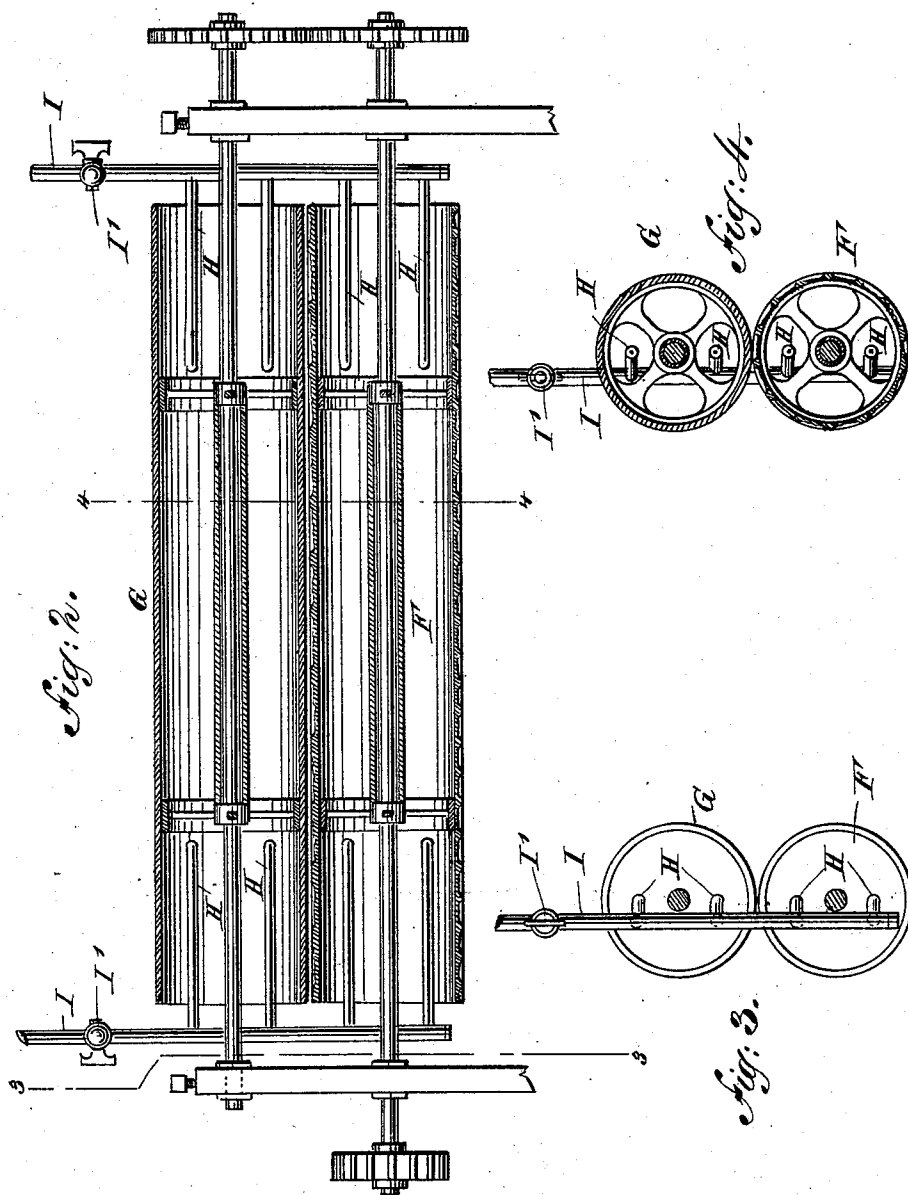
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Chas. Nida
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UNITED STATES PATENT OFFICE.

PAUL GROEBER, OF RUTHERFORD, NEW JERSEY.

MANUFACTURE OF WALL-PAPER.

SPECIFICATION forming part of Letters Patent No. 536,077, dated March 19, 1895.

Application filed January 26, 1894. Serial No. 498,103. (No model.)

To all whom it may concern:

Be it known that I, PAUL GROEBER, of Rutherford, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in the Manufacture of Wall-Paper, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in the manufacture of wall paper, whereby a paper is produced having an embossed face with a water color effect.

The invention comprises a method of and machine for manufacturing wall paper, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the wall paper printing and embossing machine. Fig. 2 is an enlarged transverse section of the embossing rollers on the line 2—2 of Fig. 1. Fig. 3 is a sectional side elevation of the same on the line 3—3 of Fig. 2; and Fig. 4 is a similar view of the same on the line 4—4 of Fig. 2.

In order to carry the above described method into effect, I construct a wall paper machine, as shown in the drawings, the said machine being provided with the impression cylinder A, over part of which passes the paper B, to be treated with color and embossing impressions, as hereinafter more fully described. The paper B, while on the cylinder A is printed on by the color printing rollers C, arranged in the same manner as in the ordinary wall paper many-color printing processes, the color being supplied from a fountain D by an apron E for each of the rollers C. After the paper has passed the last printing roller C it passes onto an embossing roller F, preferably of the same size as the rollers C, and formed on its peripheral surface with an engraving corresponding in design to the embossing or relief design to be produced on the paper B. The roller F is located close to the cylinder A, so that the paper in passing between the two and onto the roller F, receives a first embossing or relief impression to be finished by the pressure roller G, having a smooth peripheral surface so that the embossing impression is only made on that face of the paper B

on which the several rollers C have applied the color. The finished paper B', after leaving the roller G, passes to the usual drying apparatus to receive a final drying, previous to being cut up into rolls.

The rollers F and G are internally heated, and for this purpose, gas burners H are employed, projecting into the hollow rollers F and G, as plainly shown in Figs. 2, 3 and 4, the burners preferably projecting into both ends of the said rollers, and each set of burners is connected with a gas supply pipe I having a valve I' for shutting off the gas when ever desired.

Part of the peripheral face of the roller F not engaged by the paper B, is engaged by an apron J, which serves as a wiper to clean the engraved face of any paint, color or other matter which may settle in the depressed portions of the peripheral surface of the said roller, from the paper B. The wiping apron J engages a scraper K, so that the wipings are removed from the apron to drop into a box L. The apron J is thus kept clean at all times and is hence very effective in removing any material that may have settled on the peripheral surface of the roller F.

Now, it will be seen that in order to produce a paper having a non-embossed or flat back and an embossed or relief front face previously printed on, I employ a paper of a special manufacture, the said paper being composed of two firmly united layers of pulp, one layer being of sized pulp and the other of unsized pulp to form an absorbent face adapted to receive successive colors from the rollers C and the final embossing impression between the rollers F and G.

It will be seen that when paper of this description is passed onto the cylinder A and is subjected successively to printing with the various colors supplied by the successively arranged rollers C, then the absorbent face of the paper will become moist, while the back made of sized pulp sustains the facing during the process of the printing and prevents undue stretching of the paper while undergoing the process of printing and embossing.

When the paper with the moistened and printed facing finally passes between the heated rollers F and G, then the facing containing the colors is readily pressed into the

engraved peripheral surface of the roller F, so as to conform to the design engraved on the said roller, thereby embossing the front printed face of the paper, while its back remains smooth in passing over the smooth peripheral face of the other roller G.

By using a paper of the construction above described, I am enabled to employ, instead of the ordinary colors now used, water colors in the several fountains D, or to use water colors in connection with the regular pigments, to produce a wall paper having an imprinted and embossed face with both water colors and pigments.

When the paper passes through the machine, the first roller C is usually employed for moistening the paper with water, starch size, or other liquid, and the second roller C is employed for applying the ground work, and the other rollers for applying the various colors forming the design. Some of the rollers may be used to apply gold, mica, flock, flitters, or any other illuminating material, oil, distemper or varnish pigments.

It will further be seen that the colors applied to the paper are not dry, when it reaches the embossing rollers, said rollers being heated, as described, so that the embossing of the face of the paper with the coating of colors thereon will readily yield to conform to the depressions in the peripheral surface of the roller F, for, if the colors were dry and the paper passed between the said rollers F and G, then the colors would crack, break off from the paper, and the latter would be destroyed.

It will be seen that when the paper is first embossed by passing between the cylinder A and the embossing roller F, it is subjected to a moderate heat only, as it is heated only from one side, and therefore is still sufficiently moist when it arrives between the two embossing rollers F and G, where it is heated more strongly, as each of the rollers is internally heated.

The rollers F and G are rotated in unison and are driven from suitable driving mechanism of the wall paper machine, preferably by gear wheels, as illustrated in Fig. 2.

It will be obvious that equivalent fibrous materials may be substituted for unsized pulp without departing from the nature of my invention. I may for instance admix cork, sponge and other substances to the pulp.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The herein described method of manufacturing wall paper, which consists in applying a suitable backing to the solid layer of the fibrous facing material to be printed upon and embossed, firmly uniting the said material to the backing, then subjecting the facing material to color printing, giving the paper a first embossing impression and simultaneously heating it, and finally giving the paper a finishing embossing impression while subjecting it to a stronger heat than during the first embossing impression, substantially as described.

2. A wall paper machine, comprising an impression cylinder, a series of printing rollers arranged on the said cylinder to print the paper passing thereover, and two embossing rollers between which passes the paper after leaving the printing rollers, said embossing rollers being provided with means for internally heating them, one of the embossing rollers being located close to the cylinder so that the paper will be moderately heated while passing between the cylinder and the said first embossing roller, whereafter the embossing impression will be finished and the paper more strongly heated when it passes between the two embossing rollers, substantially as described.

PAUL GROEBER.

Witnesses:

THEO. G. HOSTER,
C. SEDGWICK.