

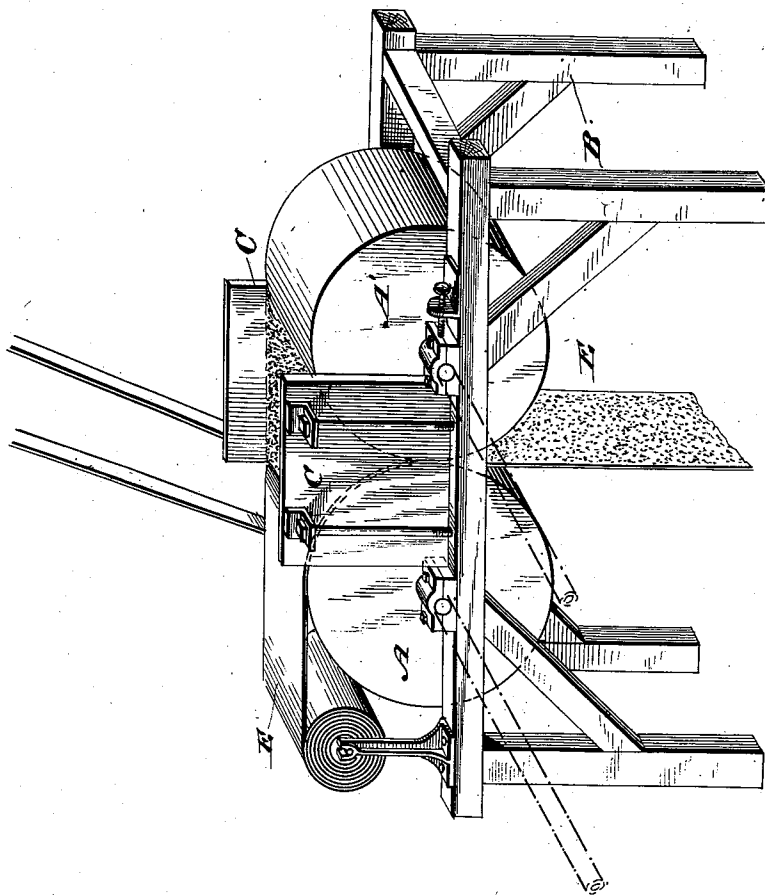
(No Model.)

W. H. H. CHILDS.

PROCESS OF ENAMELING PAPER OR OTHER FABRICS.

No. 517,732.

Patented Apr. 3, 1894.



WITNESSES

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PROCESS OF ENAMELING PAPER OR OTHER FABRICS.

SPECIFICATION forming part of Letters Patent No. 517,732, dated April 3, 1894.

Application filed March 28, 1892. Serial No. 426,703. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM H. H. CHILDS, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented new and useful Improvements in Processes of Enameling Paper or other Fabrics; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which forms a part of this specification.

The object of my invention is to produce by a novel method, an improved enameled surface on paper or other fabric from substances not heretofore employed or available for the purpose.

A further object of the invention is to produce a fabric pebbled in imitation of pebbled leather, and to effect the pebbling simultaneously with applying and forming the enamel, thereby avoiding the separate step of pebbling by imprint or similar method.

A further object is to produce a fabric which in addition to being available as a substitute for leather in the manufacture of pocket books, book covers and the like, may be employed for the manufacture of bags for shipping lime, phosphates, grain, and other goods liable to damage from water or moisture.

Finally the invention is designed to produce an enameled fabric at a cost materially less than the cost attendant on previous methods.

Reference is to be had to the accompanying drawing, in which is illustrated, in perspective, an apparatus employed in carrying out my invention.

In manufacturing enameled fabrics in accordance with my improved method I take hard pitch and heat the same to a temperature of from 400° to 600°, 450° being the lowest temperature at which really good results are attained. The material is supported directly on rollers by which it is heated, and the fabric is passed through the rollers, the heat of the rollers being such as to almost completely destroy the volatile property of the pitch immediately, by direct contact with the surface, so that the enamel is finished at once and hardens immediately after leaving the rolls, thereby avoiding subsequent manip-

ulation. Further, the heat is so intense that it causes the material to foam and the enamel hardens before the pebbled surface thus produced can become smooth, whereby the pebbling is effected without a subsequent separate operation.

In the apparatus preferably employed in practice, two horizontal rollers A A' are suitably mounted in a frame B. The rolls thus arranged form a hopper for the pitch which is preferably subjected to an initial heating. The hopper formed by the rollers is completed by the addition of plates C at each end which are held in contact with the rollers while permitting them to revolve. The pitch is supported directly on the rollers, or on one of the rollers and the paper when the paper is being enameled on one side only. The rolls are made hollow as shown and are heated by superheated steam, supplied at the trunnions, the steam pipes being indicated by dotted lines in the drawing. The continuous strip E of paper or other fabric, passes downward through the mass of liquid pitch and between the rolls, and carries with it only a thin coating or layer of the pitch, which in passing directly between the rolls is subjected to the full heat thereof and being in a thin layer is caused to foam, and the volatile property of the material is practically completely destroyed, and the enamel thus immediately assumes a hardness and finish that have not been heretofore attainable with any coating formed from kindred substances.

A more specific description of the process is as follows: The hard pitch, if such be the material, is initially heated by a suitable apparatus, and then delivered to the hopper formed by the very highly heated rolls, the latter, it will be understood being tightened up as closely as possible. The pitch at the top of the hopper is comparatively of a thick consistency and as the paper passes over the roll A or A', and immediately as it enters the pitch, the latter will adhere. The distance between the rolls being gradually less, as the paper passes downward it will be subjected to an increased heat, until it reaches the intermediate angle of the rolls, where the heat is so intense as to foam the thin coating now adhering, and the foaming will be greatly increased as the paper is pressed between the

tightly adjusted rolls and at the same time the volatile property of the coating will be almost completely destroyed, thus carbonizing the same, and fixing the foamed appearance. Thus the nature of the coating is greatly changed with the result that its melting point is far above what it was before passing between the rolls, and the layers of the paper will have no tendency to adhere to each other.

While specifying hard pitch, I include equivalent analogous substances that become liquid or plastic when heated to the extreme degrees of heat mentioned and that become practically set below 400°.

I am aware that various materials such as ordinary pitch liquefying at a temperature below 300° or 350°, bitumen and the like have been employed to coat paper, cloth, &c., and I have extensively practiced the manufacture of the same and am familiar with their characteristics and the methods of applying the same, but it has heretofore been found impossible to employ hard pitch for the purpose. Further, no one has heretofore formed an enamel of any similar substance by instantaneously destroying the volatile properties of the coating by contact with a surface sufficiently heated for the purpose and in this also my invention is readily distinguishable from others, rolls heretofore being only employed to heat and spread the substance, the normal amount of oils remaining therein, forming a retarder to the hardening and leaving the coating still sensitive to temperatures of 300° and less, and also leaving the enamel of a less firm and more pervious-nature than that produced by me.

I do not herein claim the improved article of manufacture, the same being claimed in my application, Serial No. 426,702, filed even date herewith.

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

1. The herein described method of manufacturing imitation pebbled leather, consisting in applying the heated pitch or analogous coating material to paper or other fabric, and subjecting the coating to a heat sufficient to foam the coating and simultaneously deprive it of its volatile properties, substantially as described

2. The herein described method of manufacturing enameled fabrics, consisting in heating a substance such as pitch, applying the same to paper or other fabric by running the latter through such substance, and immediately subjecting the coating to a heat sufficient to deprive it of its volatile properties, and simultaneously to a rolling pressure, substantially as described.

3. In the manufacture of enameled fabrics, the herein described method of finishing the same, consisting in subjecting the applied coating to a heat sufficiently high to materially deprive it of volatile properties and markedly raise its melting point, substantially as described.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

WILLIAM H. H. CHILDS.

Witnesses:

W. S. ALEXANDER,
EVERSLEY CHILDS.