No. 791,503.

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UNITED STATES PATENT OFFICE.

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PROCESS OF PRINTING UPON PYROXYLIN MATERIALS.

SPECIFICATION forming part of Letters Patent No. 791,503, dated June 6, 1905.

Application filed May 25, 1900. Serial No. 17,972.

To all whom it may concern:

Be it known that I, RICHARD E. ROEHM, of Newark, in the county of Essex, in the State of New Jersey, have invented new and useful Improvements in Processes of Printing Upon Pyroxylin Materials, of which the following is a full, clear, and exact description.

This invention relates to improvements in processes for printing upon pyroxylin materials.

Many efforts have heretofore been made to print or lithograph upon pyroxylin materials and similar substances; but no attempts have been made to do other than print upon the surface, leaving the ink unprotected. Printing of this character, however, is of short duration and soon rubs off and becomes effaced, owing to the fact that no effort was made to embed the ink into the body printed upon or protect it, which is a condition precedent to permanency. I have found by long and repeated experiments that in order to give permanency to the ink it is necessary to first prepare the material to be printed upon, so that it will receive the ink and at the same time avoid spreading. I have also found that after the printing has been done some means must be provided for protecting the ink.

In preparing the sheets I momentarily saturate them with a solution which acts chemically upon the ingredients in the pyroxylin material to disintegrate or dissolve the surface of the sheet to a limited extent, which renders said surface plastic and somewhat porous to receive the ink. I do not limit myself to any particular solution or chemical which will produce this plastic coating, as it will be evident that various solutions will produce the same results, such as amyl acetate. After this coating has dried I then pass the sheets through rollers upon which is applied an adhesive solution. This gives an additional body to the porous surface formed as above recited and upon which the ink is placed during the process of printing, the ink sinking through the porous surface to the main body of the sheet. After the printing has been done and the ink dried upon the sheets I place them, preferably, between sheets of metal, making as many layers as I have room for in the press, which is especially constructed for this purpose. I then place them in a steam-press, in which great pressure is brought to bear upon the ink, and this, together with the heat caused by the steam-chamber, forces the ink into the surface while in its plastic state. When this is complete, I turn the steam off the chamber in the press and pass cold water through the chamber, so as to chill the printed sheets still under pressure. The chilling of the sheets at the end of the process causes the sheets to lie smooth and flat and returns them to the condition in which they were before the process is begun.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The herein-described process of printing upon pyroxylin material consisting in first converting the surface of the pyroxylin material into a plastic porous state, then applying an adhesive substance to the said porous surface, then printing upon the surface thus prepared, and next subjecting the surface with the printing therein to great pressure under heat.

2. The process of producing indelible prints on pyroxylin consisting first in converting the surface of the pyroxylin material into a plastic state and then allowing it to dry, then applying an adhesive substance to said surface, then printing upon the adhesive surface and allowing it to dry, then subjecting the whole to pressure under heat, and then suddenly chilling the surface while under pressure.

In witness whereof I have hereunto set my hand this 27th day of March, 1900.

RICHARD E. ROEHM.

Witnesses:

STEWART IRWIN,

M. A. CARPENTER.