

UNITED STATES PATENT OFFICE.

GEORGE T. JONES, OF CINCINNATI, OHIO.

IMPROVEMENT IN MANUFACTURING BANK-NOTES.

Specification forming part of Letters Patent No. 54,834, dated May 15, 1866.

To all whom it may concern:

Be it known that I, GEORGE T. JONES, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in the Manufacture of Bank-Notes, Bonds, and analogous Securities; and I do hereby declare that the following is a full, clear, and exact description of the same.

To impart the necessary strength and durability to bank-notes the paper on which they are printed must be treated with a size of such a character that the entire body of the paper will be made homogeneous and its fibers thoroughly cemented together. This can be properly accomplished only with suitable machinery, such as is usually employed in a paper-mill. The common plan is to size the paper before printing. The objections to this are, first, sized paper is robbed of a portion of its strength each time it is damped for the purpose of printing; second, the inks do not enter into the fiber of the paper, but lie upon the surface, and hence may be easily softened or removed for the purpose of counterfeiting or altering from one denomination to another; third, upon sized papers it is impossible to use some of the most brilliant and valuable colors, because, owing to their softness and lack of adhesiveness, they are liable to rub off or be changed by moisture, unless they enter into the fiber of the paper; fourth, owing to the contraction and expansion of sized paper it is impossible to obtain a perfect register in printing with various colors at successive operations; fifth, counterfeiting bank-notes has usually been effected by subjecting the ink on the note to the action of an alkaline solution and then transferring the point upon the plate to be engraved, and this has been greatly facilitated by the exposure of the ink upon the outside of the glazing.

My improvement consists in printing or writing upon the paper while in an unsized or only partially sized condition, so that the ink or other coloring-matter will come in actual contact with and to some extent penetrate the fiber of the paper. After the printing is completed, and, if desired, after signing also, the glutinous size is applied, in the ordinary manner of sizing writing-paper, so as to completely

cover without obscuring the printing or writing and permeate the body of the paper, thus cementing its fiber and rendering it strong and durable.

By thus sizing after instead of before printing I am enabled to add strength to the paper, remove the printing or writing entirely beyond the reach of injury either by dishonest intention or from necessary wear or moisture by handling or otherwise, and obtain absolute perfection in registering, and greatly obstruct, if not entirely prevent, the transfer of the writing and printing for the purpose of counterfeiting. An additional security is afforded by the fact that any attempt to tamper with the improved notes with chemicals for the purpose of obtaining transfers will be infallibly detected by the contraction which it will cause in the note or other instrument.

The note may, if preferred, be printed in several colors, some permanent and some of a fugitive character, which can be reached through the size by a saline or acid solution. The fugitive portions may be of an essential character, such, for instance, as the numerals of a note or bond, so that on tampering with the document they will be instantly discharged and the value of the note destroyed.

The size is transparent and will withstand the ordinary wear to which the note will necessarily be subjected, and be incapable of removal without so far softening the ink as to prevent a clean and effective transfer of the ink to a plate or block.

For this purpose I have used with good effect Russian isinglass, which adheres very closely to the paper and affords the protection required; but I do not claim or restrict myself to any particular material for the size or any particular mode of printing.

Having thus described my invention sufficiently to enable any one skilled in the art to which it appertains to understand and use it, the following is what I claim as new and desire to secure by Letters Patent:

1. The process, substantially as herein described, of manufacturing bank-notes, bonds, or analogous securities by applying ink or coloring-matter to unsized or partially sized paper, so that it will penetrate or come into

actual contact with the fiber thereof, and afterward applying a coating of size to permeate the paper, cement its fibers, and prevent counterfeiting or alteration by the transfer or removal of the ink.

2. As a new article of manufacture, a bank-note, bond, or other evidence of value with

the printed portion or signatures protected by size, for the purpose of preventing counterfeiting or alteration.

GEO. T. JONES.

Witnesses:

EDWARD H. KNIGHT,
C. D. SMITH.