

UNITED STATES PATENT OFFICE.

M. CAREY LEA, OF PHILADELPHIA, PENNSYLVANIA.

DEVICE TO PREVENT COUNTERFEITING BANK-NOTES, &c.

Specification forming part of Letters Patent No. **38,231**, dated April 21, 1863.

To all whom it may concern:

Be it known that I, M. CAREY LEA, of Philadelphia city, State of Pennsylvania, have invented certain new and improved methods for the engraving and printing of bank, treasury, and other notes for circulation and certificates of loan and indebtedness, to secure them better against counterfeiting, the nature of which invention is described below.

Before proceeding to describe my several methods I must first, in order to avoid constant repetition, define the exact sense which I attach to certain expressions wherever used throughout this specification.

Ground tint.—By this I intend any coloring-matter incorporated with the substance of the paper or spread evenly and uniformly over its surface by printing or diffused over or through it by straining.

Ground design.—By this I intend a more or less open pattern or device, whether by ruling, cross-hatching, lathe-work, or other engraving whatever, between the vignettes and dies or over the whole surface of the note, bond, or certificate, over or under laying them. Numerals, letters, ciphers, words, and figures, when engraved very small, placed in close juxtaposition with each other, may be used as and constitute a ground design. In such cases I classify such work under the head of "ground designs," although they are expressive of denomination.

Obligatory portions.—By this I intend not only the promissory and explanatory portions, but also dies, devices, numerals, letters, and symbols expressive of the denomination or value of the instrument, except where the numerals, letters, and symbols are printed very small and in close juxtaposition, when they in reality constitute ground design, and I classify them as such.

Ornamental portions.—By this I intend the vignettes, portraits, groups, landscapes, figures, and symbols introduced merely for ornament, and to increase the difficulty of imitation, but in no case including the ground tint or ground design, which I classify apart, even if introduced simply for ornament.

Permanent ink or color.—By this I intend not one which is essentially indestructible, but one which cannot be destroyed or removed by any reagents which do not either destroy or disaggregate the paper or soften or loosen the

varnish or boiled oil which attaches the ink to the paper.

Fugitive ink or color.—By this I intend one that can be removed without injuring the paper or softening the oil, but which, nevertheless, may be abundantly strong to resist without difficulty all legitimate use, wear and tear, and ordinary accidents, such as exposure to damp and to any heat not sufficient to char the paper.

First. I propose to print or stain or otherwise produce a ground tint, ground design, or incorporated color in a graduated shade, commencing with a fainter color at one edge or corner of the note and gradually increasing or changing in depth, true shade color, or intensity to another side or corner, or conversely, beginning darker and becoming lighter, or increasing or diminishing to a certain distance, then diminishing or increasing in the respective cases. By this graduation of tint I greatly increase the difficulty of fraudulent reproduction or imitation. Another form consists in passing from a darker shade at the edges to a lighter one in the middle, or conversely.

Second. I propose to place the block or plate on which the signatures are engraved, and the numbering apparatus, and also the stamp used for sealing, or any two of them, in the same form or frame, in order that these three operations, or any two of them, may be executed simultaneously, thereby effecting a saving of time and expense and causing the one to answer as a check upon the other.

Third. I propose to print the portraits, vignettes, groups, scenes, devices, &c., constituting the ornamental work, as hereinbefore defined, or the principal part thereof, with a fugitive tint or color; but the obligatory part, including the dies, words, lettering, numerals, ciphers, figures, letters, and symbols expressive of the denomination of the instrument or principal part thereof in one or more permanent colors. In this manner, if it be attempted to tamper with the latter, they resist, while the vignettes are defaced.

I wish clearly to be understood as using the expression "ornamental portion" here strictly in the sense attached to it by definition for the purposes of this specification, and not as including the ground tint or ground design, which may be printed in either permanent or

fugitive color, for, though I give a decided preference to the permanent, I consider the method just described to be within the scope of my claim, whether either sort of ground tint or ground design be used or none at all. This principle differs essentially from anything that has been hitherto proposed. It has been proposed to print the ornamental and obligatory parts of the note in fugitive ink upon a more permanent ground tint; but this only facilitated alteration. It has been also proposed to print two ground designs, the one permanent and the other fugitive; but in my method the protection claimed is altogether independent of the ground tints, whereas in the case just referred to it depended exclusively upon them. I do not propose to print two ground tints, the one deleble and the other indelible, as in Sparre's patent; but I print the ornamental part of the note, or the principal part thereof, in a fugitive color, and the

obligatory and denominational part, or the principal part thereof, in a permanent color, with or without any ground tint or tints, permanent or otherwise.

I claim therefore—

1. The printing or staining a ground design or incorporating a color in a graduated shade.
2. Printing simultaneously the signatures, numbering, and seals by placing the stamps, blocks, &c., in one frame.
3. Printing the ornamental part of the note as distinguished from the ground tints in fugitive and the obligatory and denominational part in permanent color, all as already described, or in any other manner substantially the same.

M. CAREY LEA.

Witnesses:

ISAAC LEA,
FRANCES LEA.