No. 730,823. PATENTED JUNE 9, 1903.

E. W. HALL.

INVISIBLE IMPRESSION PRINTING.

APPLICATION FILED MAR. 1, 1902.

NO MODEL.

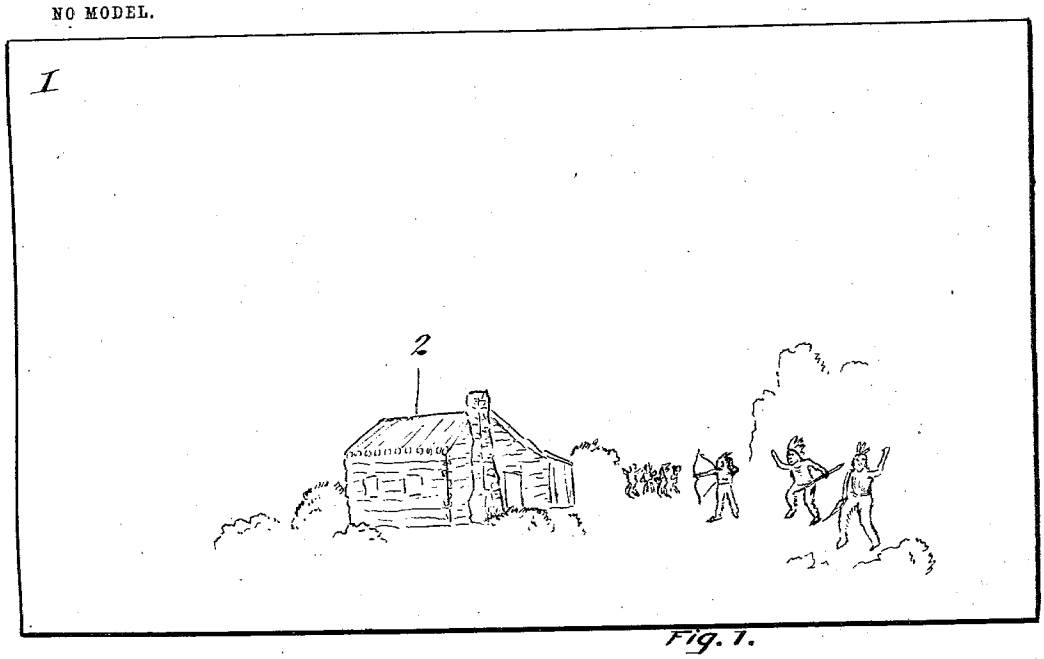


Fig. 1.

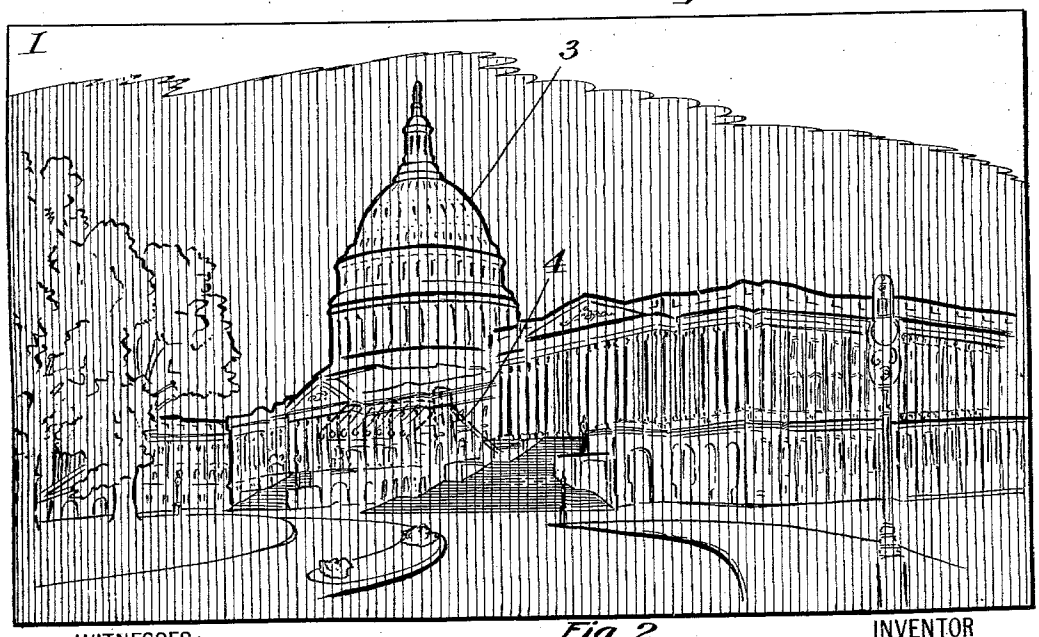


Fig. 2.

WITNESSES:

H. R. Appleman

Hartwell P. Heath

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his ATTORNEY.

No. 730,823. Patented June 9, 1903.

UNITED STATES PATENT OFFICE.

EDWARD W. HALL, OF RUTHERFORD, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO NEW ERA COMPANY, OF NEW YORK, N. Y., A CORPORATION.

INVISIBLE-IMPRESSION PRINTING.

SPECIFICATION forming part of Letters Patent No. 730,823, dated June 9, 1903.

Application filed March 1, 1902. Serial No. 96,229. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. HALL, a citizen of the United States, residing at Rutherford, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Invisible-Impression Printing, of which the following is a specification.

This invention relates to invisible-impression printing, and has for its object to provide an improved process of printing in which a faintly visible and a substantially invisible representation are printed, one over the other, upon the same surface, so that the development of the invisible obliterates the visible.

In the drawings, Figure 1 is a plan view showing the visible impression prior to treatment of the impression-receiving surface to develop the nearly-invisible impression. Fig. 2 is a view similar to Fig. 1, showing the same after treatment of the impression-receiving surface to develop the nearly-invisible impression.

Corresponding parts in both figures are denoted by the same reference characters.

My improved process consists in the formation of a visible impression upon a suitable surface, which is a representation of some object at one time or under certain circumstances or in a predetermined condition. I next form a nearly-invisible impression upon the same surface of an object related in time, form, development, or change to the visible object. The lines of the nearly-invisible impression are made to conform substantially to the lines of the nearly-visible impression and are preferably bolder than the lines of such visible impression. The nearly-invisible impression may subsequently be rendered visible by treatment of the surface bearing the same with a lead-pencil, graphite, ink, or other suitable materials, or by the application of coloring-matter by friction, or by the application of heat, which will affect the surface bearing the nearly-invisible impression and the surface adjacent to or surrounding said impression in a different manner or to a different degree. In forming the nearly-invisible impression suitable sympathetic or invisible inks or chemicals are employed, and these inks or chemicals may be applied to types, stereotypes, or other impression-producing means and the operation of printing performed in the customary manner. A convenient material for producing such nearly-invisible impression on a white ground has been found to be composed of the following ingredients, to wit: One pound of white lead and one ounce of secatif drier reduced with boiled linseed-oil to the consistency adapted to the substance to be treated. It will be understood that a different consistency is required according to the absorbent qualities of the substance upon which the impression is to be made. This same ink or material may be used on colored grounds by coloring it with a suitable coloring-matter. When it is desired to bring the nearly-invisible impression into view, the surface of the paper or other impression-bearing material is subjected to treatment by a lead-pencil, graphite, ink, or other color-imparting device or material, and the particles of coloring-matter applied to the impression-bearing surface in this manner produce effects upon the portion of the surface bearing invisible impression and the portion of the surface which surround the nearly-invisible impression, so that the nearly-invisible impression is brought out or developed in strong relief. On account of the substantial conformity of the lines of the nearly-invisible impression with the lines of the visible impression and the fact that the lines of the nearly-invisible impression are stronger and bolder than those of the visible impression the visible impression is substantially obliterated or absorbed in the development of the nearly-invisible impression, leaving only what was the nearly-invisible impression visible.

Referring to the drawings, 1 designates a sheet of white paper, upon which is visibly printed a representation 2 of the first capitol of the United States and a nearly-invisible impression 3, showing the same in its present condition. In Fig. 2 I have shown the same thing, the nearly-invisible impression 3 having been developed or made visible by the frictional application of a lead-pencil. In Fig. 2 some lines of the visible impression are

still faintly traceable, as at 4, and better illustrate the conformity of the two impressions and the effect of the development of the nearly-invisible impression.

The novelty and usefulness of my process have already been established by the varied and manifold purposes to which it has already been applied and the general demand for it. It is used to increase the security of trade-marks by the nearly-invisible printing of portions thereof, of bottled goods by nearly invisibly printing portions of the labels; to aid education by nearly invisibly printing parts of the illustrations of lessons or lectures, which have an important bearing in view of the fact that it is well known that things presented objectively to the senses make a deeper impression than those merely heard or read and the fact that it adds a new interest, causing the operation of learning to assume somewhat the aspect of an interesting game; to the aid of science by visibly printing the form of a subject in one state and nearly invisibly printing the form of the same in another state, thereby very forcibly impressing the development or change in the subject when the nearly-invisible impression is developed, and to many commercial uses, of which may be mentioned the extension of the value of advertising by visibly printing a primitive form of a device and nearly invisibly imprinting its improved form, thereby attracting attention to the wonderful change and the advantages of the new over the old. I therefore do not desire to be understood as limiting myself to any specific embodiment of the broad features of my newly-invented process, but reserve the right to all such modifications, variations, and forms as fall within the scope of my invention and the terms of the following claims.

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

1. As an improvement in the art of printing, the herein-described method consisting in producing upon the same impression-receiving surface a visible impression and a nearly-invisible impression, said visible and nearly-invisible impressions representing correlatively a "transformation" subject and said nearly-invisible impression being printed or produced upon the impression-receiving surface in a substantially invisible or sympathetic material capable of development to visibility by treatment of the surface with a pencil, crayon, or other material or substance which will produce visibility, and subsequently developing the nearly-invisible impression to substantially obliterate the visible impression and effect a transformation of the representation.

2. As an improvement in the art of printing, the herein-described method, consisting in producing upon the same impression-receiving surface, a visible impression, and a nearly-invisible impression, one of said impressions being superimposed upon the other, and the lines of the nearly-invisible impression being heavier or bolder than the lines of the visible impression and subsequently developing the nearly-invisible impression to substantially obliterate the visible impression.

3. As an improvement in the art of printing, the herein-described method, consisting in producing upon the same impression-receiving surface, a visible impression, and a nearly-invisible impression, one of said impressions being superimposed upon the other, and the lines of the nearly-invisible impression being heavier or bolder than the lines of the visible impression, and subsequently developing the nearly-invisible impression by treatment of the impression-receiving surface.

4. As an improvement in the art of printing, the herein-described method, consisting in producing upon the same impression-receiving surface, a visible impression, and a nearly-invisible impression, one of said impressions being superimposed upon the other, and the lines of the nearly-invisible impression being heavier or bolder than the lines of the visible impression, and subsequently treating the impression-receiving surface with suitable coloring-matter, to develop the nearly-invisible impression.

5. As an improvement in the art of printing, the herein-described method, consisting in producing upon the same impression-receiving surface, a visible impression, and a nearly-invisible impression, one of said impressions being superimposed upon the other, and the lines of the nearly-invisible impression being heavier or bolder than the lines of the visible impression, and subsequently coloring the impression-receiving surface to develop the nearly-invisible impression, and substantially obliterate the visible impression.

6. As an improvement in the art of printing, the herein-described method, consisting in producing upon the same impression-receiving surface, a visible impression, and a nearly-invisible impression, one of said impressions being superimposed upon the other, and the lines of the nearly-invisible impression being heavier or bolder than the lines of the visible impression, and subsequently treating the impression-receiving surface with a pencil to develop the nearly-invisible impression.

7. As an improvement in the art of printing, the herein-described method consisting in producing upon the same impression-receiving surface a visible impression and a nearly-invisible impression, one of said impressions being superimposed upon the other and the nearly-invisible impression representing a subject directly related to that represented by the visible impression and having lines heavier or bolder than the lines of the visible impression and subsequently develop-

ing the nearly-invisible impression to substantially obliterate the visible impression.

8. As an improvement in the art of printing, the herein-described method consisting in producing upon the same impression-receiving surface a visible impression and a nearly-invisible impression, one of said impressions being superimposed upon the other and the nearly-invisible impression representing a transformation of the subject represented by the visible impression and having the lines heavier or bolder than the lines of the visible impression and subsequently developing the nearly-invisible impression to substantially obliterate the visible impression.

9. An impression-receiving sheet having produced upon its surface a visible impression and a nearly-invisible impression, one of said impressions being superimposed upon the other and the lines of the nearly-invisible impression being heavier or bolder than the lines of the visible impression, said nearly-invisible impression being printed or produced upon the surface of the sheet in a substantially invisible or sympathetic material capable of development to visibility by treatment of the surface with a pencil, crayon, or other material or substance which will produce visibility, whereby the nearly-invisible impression will be substantially obliterated by reason of the superimposed position of said impressions and a transformation of the representation will be effected.

10. An impression-receiving sheet having produced upon its surface a visible impression and a nearly-invisible impression, one of said impressions being superimposed upon the other and the nearly-invisible impression representing a subject germane to the subject represented by the visible impression and having lines heavier or bolder than the lines of the visible impression, said nearly-invisible impression being printed or produced upon the surface of the sheet in a substantially invisible or sympathetic material capable of development to visibility by treatment of the surface with a pencil, crayon, or other material or substance which will produce visibility, whereby the nearly-invisible impression will be substantially obliterated by reason of the superimposed position of said impressions and a transformation of the representation will be effected.

11. An impression-receiving sheet having printed or produced upon its surface a visible impression and a nearly-invisible impression, said visible and nearly-invisible impression representing correlatively a "transformation" subject and one impression being superimposed upon the other, the visible impression being capable of substantial obliteration by the development to visibility of the nearly-invisible impression and said nearly-invisible impression being printed or produced upon the surface of the sheet in a substantially invisible or sympathetic material capable of development to visibility by treatment of the surface with a pencil, crayon, or other material or substance which will produce visibility, whereby when the visible impression is substantially obliterated by the development to visibility of the nearly-invisible impression a transformation of the representation will be effected.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

EDWARD W. HALL.

Witnesses:
HARTWELL P. HEATH,
JOHN M. HECTOR.