

No. 891,499.

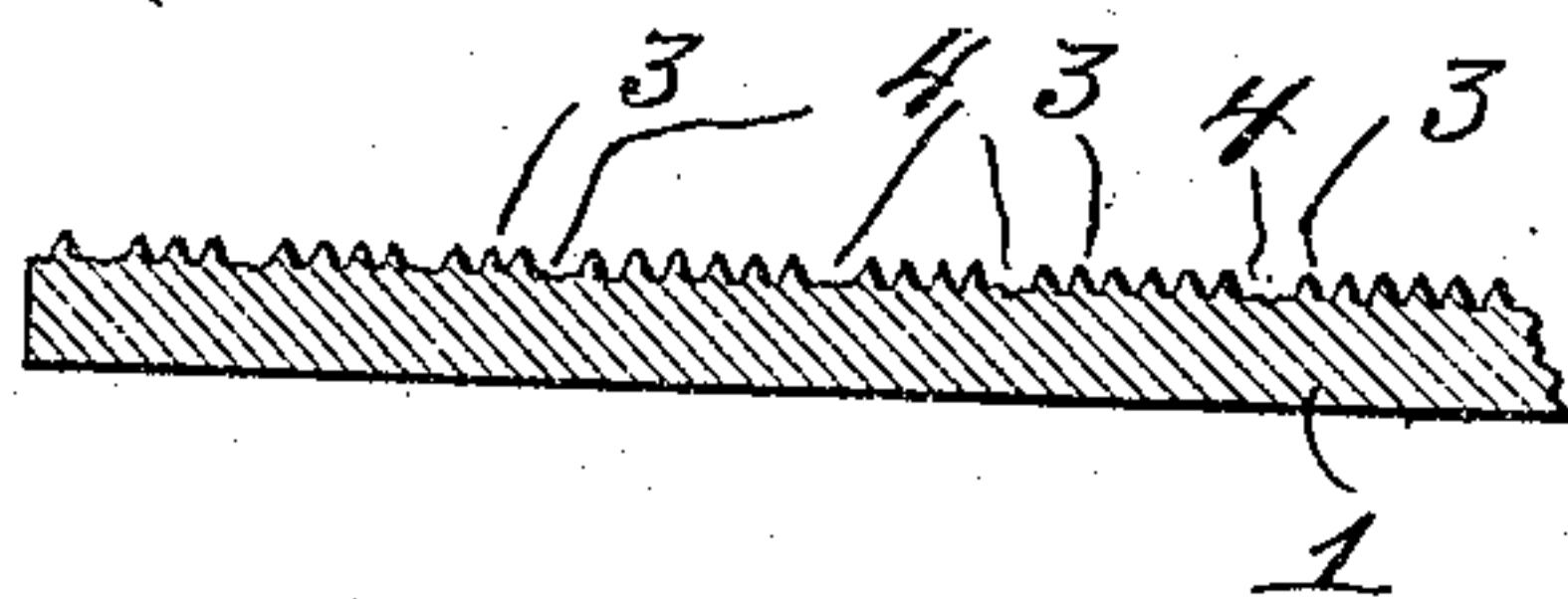
PATENTED JUNE 23, 1908.

L. E. MORNINGSTAR.
MATRIX AND METHOD OF FORMING SAME.
APPLICATION FILED OCT. 15, 1906.

Fig. 1.



Fig. 2.



Witnesses

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MATRIX AND METHOD OF FORMING SAME.

No. 891,499.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed October 15, 1906. Serial No. 332,059.

To all whom it may concern:

Be it known that I, LESLIE E. MORNINGSTAR, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Matrices and Methods of Forming Same, of which the following is a specification.

This invention provides a matrix-forming sheet by which types and cuts for printing may be readily produced without the necessity of resorting to certain operations heretofore practiced, one object being to provide a quick and inexpensive method of production, particularly desirable for use in newspaper and other work requiring despatch in the reproduction of sketches and the like, and another object being the production of the cut with stippled or screen-like surface either for background printing or to give a half-tone effect to the reproduction.

The invention, therefore, consists in forming a matrix sheet preferably of card board or other sheet of substantially like surface and compressible texture, and minutely indenting or corrugating the surface thereof by compression, so as to leave a comparatively soft surface formed of the uncompacted relief portions which may be readily depressed and compacted without spreading, thus not only admitting of the drawing of a picture in depression on the sheet direct, or from a pencil sketch or tracing made on the surface, or from a type, or cut by impressing the same thereon, but securing the stippled effect in its reproduction.

In the accompanying drawing illustrating the invention: Figure 1 represents the matrix sheet prepared in accordance with the invention and impressed with a picture, and, Fig. 2 is an enlarged transverse section taken through a portion of the impressed sheet on the line $x-x$.

Referring more particularly to the drawing, 1 indicates the matrix sheet which is formed preferably of thick paper, the object being to provide a stiff and tenacious sheet of material susceptible of ready surface-compression to form a matrix thereof, and at the same time adapted to compact within the area compressed without materially spreading. For the purpose of eliminating any liability toward the spreading of the sheet and to provide the type or cut formed from the

matrix with a stippled or screen-like surface, the matrix sheet is initially provided with a stippled or corrugated surface 2 by means of a steel plate or die having on its face minute projections of uniform extension, preferably of conical cross section, and about one sixty-fourth of an inch apart, and which by minutely indenting the sheet, form an uncompacted soft relief surface made up of the minutely raised portions 3, as shown more clearly in the enlarged section, Fig. 2, while the conical pits formed by the projection of the plate will have a compacted bottom surface and terminate at a uniform depth in points or lines. In forming this surface the die is applied to the sheet while the sheet is in the dry state so that the result of the die compression will be as stated above, the soft surface of the sheet thereby yielding uniformly to compression by a stylus or other instrument without affecting the base of the stipple-forming pits. Upon the matrix sheet thus formed the artist is provided with a surface upon which a picture can be drawn in the first instance with pencil or crayon, and then with a stylus the lines in the drawing can be pressed to the depth of the recesses or indentations made by the steel plate, the soft projecting portion 3 readily compacting under the pressure without filling in or changing the indentations adjacent the lines of depression so that the type or cut formed upon the matrix sheet will print a uniform stippled or lined surface and produce the well known "half-tone" effect. While the matrix sheet thus formed tends to produce a uniform depth of stipple or line depression, thus facilitating drawing in depression, the sheet will admit of deeper depressions where such are desired.

It will be seen that the indentations in the face of the matrix sheet are so small and close together that the artist can draw a design as freely thereon as on the surface of any ordinary rough paper and thus can make the first outline of his drawing and then press the lines down to the desired depth; and it will be obvious that impressions can be also taken on this matrix sheet from type-forms, and that a portrait, picture, or drawing may be reproduced on the matrix sheet by any of the well known methods of tracing, as by means of a carbon sheet, the lines of the tracing being depressed in the manner set forth.

The matrix sheet above described is placed in a stereotype box and metal poured in upon it in the same manner as in casting from an ordinary matrix, the same kind of metal and the same degree of heat being employed as now generally practiced in this art. When the metal has cooled sufficiently the casting box is opened and the matrix sheet can then be freely removed and be ready for further use.

Matrix sheets having minute indentations for the purpose of producing a strippled or screen effect are not new, as a relief surface has been formed on a matrix sheet by the use of material which under compression will disintegrate and be cut out of the sheet or else spread and compacted within indentations in the sheet, but it will be seen that the present invention employs a material which does not disintegrate but is of a fibrous texture and compacts within the same area occupied in its soft or uncompacted condition and by reason of this initial compaction to form the stipple pits a uniform and clear cut stippled relief is made possible in the printing plate formed from such a matrix, while the drawing in depression thereon is greatly facilitated by the initial depression of so much of the surface of the sheet and the hardening of the sheet at the depth to which the depressions extend.

What I claim as new and desire to secure by Letters Patent, is:

1. A matrix sheet formed of compressible material of non-disintegrating nature, and

having its molding surface stippled or lined in depression to a uniform depth, as and for the purpose set forth.

2. A matrix sheet formed of compressible material, of non-disintegrating nature having its molding surface stippled or lined in depression, said depressions having converging walls terminating in a stippled-forming base at a uniform depth, as and for the purpose set forth.

3. A matrix sheet formed of compressible material, having portions of its molding surface compacted to provide minute recesses of uniform depth to form dots or lines in the printing plate to be molded therefrom, the relief portions of said molding surface being of uncompacted material, as and for the purpose set forth.

4. The method herein described for forming a matrix sheet, which consists in first producing upon a sheet a field of stipples or lines in depression, said depressions being formed by compacting the material of the sheet whereby it will leave an uncompacted relief surface between the depressions, and then forming the design desired in depression upon the relief surface so formed, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

L. E. MORNINGSTAR.

Witnesses:

R. J. McCULLAGH,
JOHN S. OBERHOLTZER.