

No. 617,909.

Patented Jan. 17, 1899.

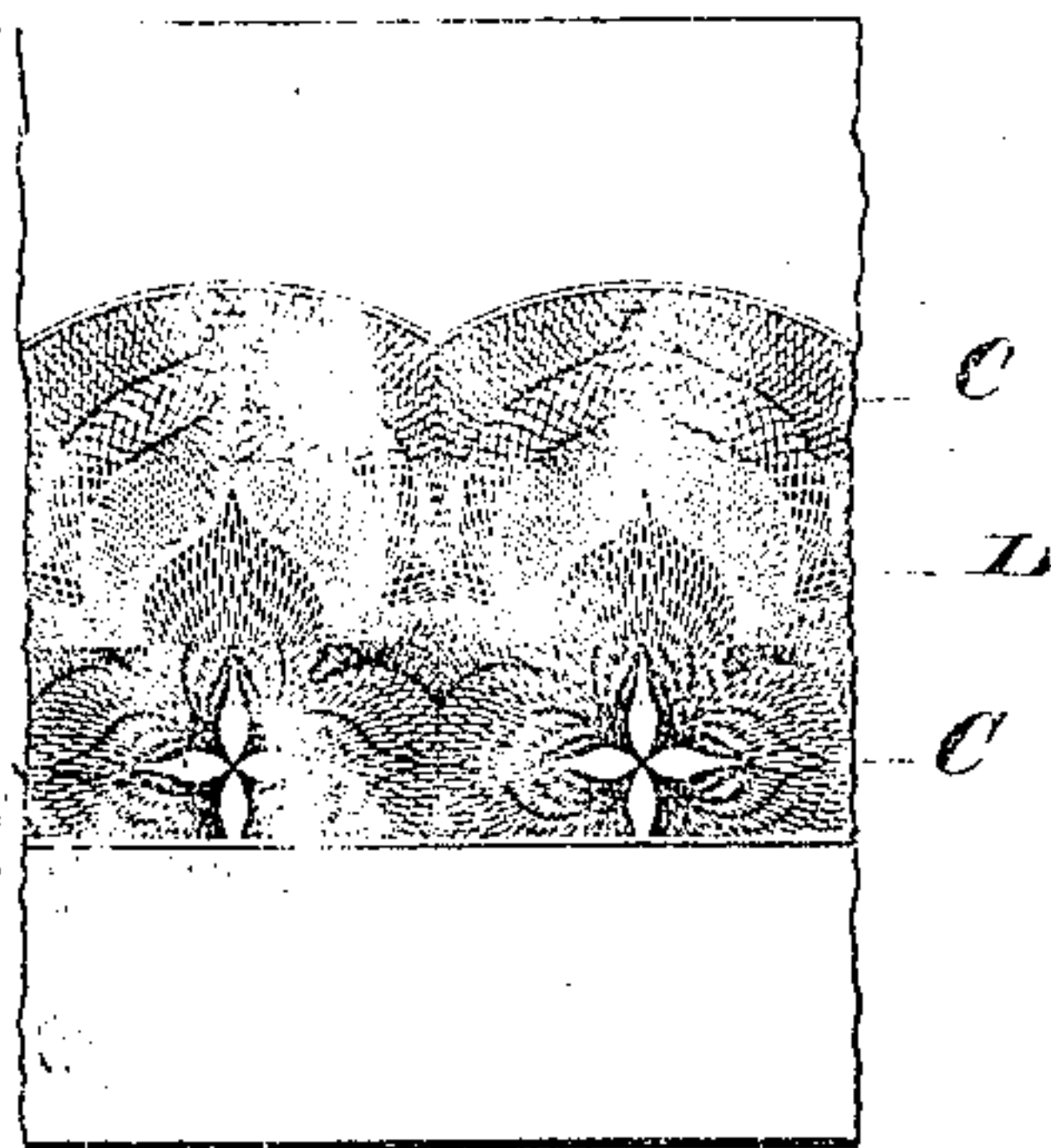
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ART OF PRINTING.

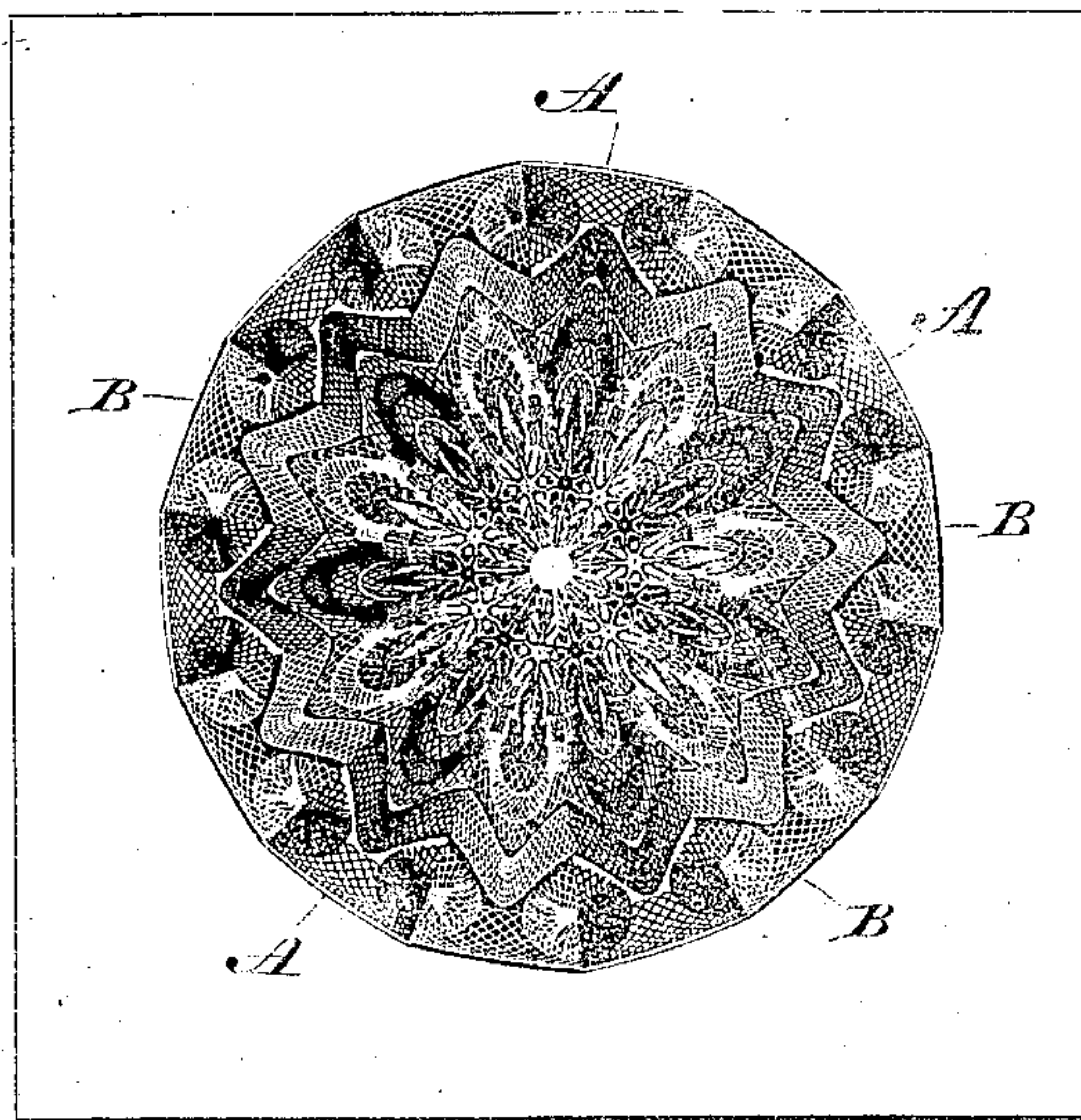
(Application filed Apr. 23, 1898.)

(No Model.)

*Fig. 2.*



*Fig. 1.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

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N. Y., ASSIGNORS TO THE AMERICAN BANK NOTE COMPANY, OF SAME  
PLACE.

## ART OF PRINTING.

SPECIFICATION forming part of Letters Patent No. 617,909, dated January 17, 1899.

Application filed April 23, 1898. Serial No. 678,607. (No model.)

*To all whom it may concern:*

Be it known that we, JUDAH TOURO ROBERTSON and HENRY GEORGE MANDEL, citizens of the United States, residing in the borough of Manhattan, in the city of New York, State of New York, have invented certain new and useful Improvements in the Art of Printing, of which the following is a specification.

Our invention relates to the art of printing, and has for its objects certain improvements in the preparation by a mechanical transfer process of surfaces for printing, either from relief or plate, whereby through certain novel steps in the process of preparing the same a new and unique result in said printing-surface will be accomplished.

To enable those skilled in the art to understand our invention, we will describe one of the methods by which it may be produced; but we do not confine ourselves to the method described or to the particular character of apparatus hereinafter specified for accomplishing the desired result.

Our improved process consists in placing upon a surface, hereinafter termed a "bed-piece," a design, then forming from all or a selected portion thereof a second surface, which will produce the original design in reverse, and finally using this reverse design, in connection with a surface carrying the design in its original form, to form a printing-surface which shall carry the design in part reversed and in part direct or in its original form and which when printed from and by whatever method printed will produce an effect in part in inked lines with blank interstices and in part in blank lines with inked interstices.

In the drawings accompanying this specification, Figure 1 represents a printing-form having a design produced thereon in circular form and embodying our invention, and Fig. 2 a portion of a printing-form in which the different parts of the same design are produced alternately positive and reversed in a series of parallel sections.

We will now proceed to describe our invention as used to produce a printing-surface from an original engraved or intaglio design, and by reference to Fig. 1 of the accompanying drawings it will be seen that the circle is

divided into a series of fourteen segments, each alternate segment A having the design impressed in intaglio, while the intermediate segments B have the intaglio and relief portions reversed, thus when printed from producing in white the portions that appear in color in the segments A and in color the portions that appear in white in said segments A, the alternate sections of the printing-surface being formed by the process above described. A convenient means for carrying out the steps of this process is to cut away from the original bed-piece all of the design but that portion to be used—in this instance the part shown by one of the segments A—though of course when a design is to be used in its entirety no cutting away is necessary, and to take a transfer therefrom by passing a soft-steel roll, under pressure, over said bed-piece, the latter having been previously hardened or tempered. We will now have two surfaces with the same design thereon, except that the roll when taken from an intaglio original will have said original intaglio portion reproduced thereon in relief, while the original bed-piece will remain unchanged. Now by hardening or tempering the roll and again transferring alternately from these surfaces onto a soft-steel surface, care being taken to accurately register the lines, we produce thereon the design shown in Fig. 1, in which the sections A will be those transferred from the roll, while the sections B will be those transferred from the original bed-piece. Said surface upon being properly hardened or tempered is ready to be printed from. While we have shown and described these intaglio and relief sections arranged alternately in said figure, it will be understood that the arrangement may be varied as desired—as, for instance, by arranging every third or fourth section in intaglio and the rest in relief, or vice versa—the particular arrangement forming no part of the invention.

In the plate shown in Fig. 2 the same process is followed, except that in this instance the original design is subdivided into a series of parallel sections, the sections C appearing as they would if the original bed-piece were used to print from, while the sec-



tion D appears with its portion of the same design reversed, thus bringing white lines to correspond with the color lines of sections C, and vice versa.

5 It has been found best in practice in forming the printing-surface shown in Fig. 1 to take up two separate but similar segments onto two different rolls, using one of these to transfer the original design to the printing-  
10 form in intaglio and the other one to transfer to a third roll in intaglio, from which the sections B are transferred, reversed, to the printing-form, as described, and said printing form may therefore be made in either man-  
15 ner, as may be desired. This latter practice possesses the double advantage of saving unnecessary wear and tear on the design on the original bed-plate and of the necessity for cutting away portions of an original de-  
20 sign not intended to be used to obtain a particular result, as the necessary cutting away can be done from the rolls after the transfer thereto and before tempering.

As before stated, we desire it to be dis-  
25 tinctly understood that we do not limit ourselves to the above-described process of transferring from engraved or intaglio plates, as the same may be as advantageously used with any kind of mechanical printing—as, for in-  
30 stance, with relief-plates—and the resultant design on the printing-form printed typographically. So, also, pantograph work may be employed in forming the original and printed either by plate-printing or typog-  
35 graphically. Nor do we confine ourselves to the above-described process of transferring to produce these results. For these reasons the use of the terms “intaglio” and “relief” are to be understood in their broadest sense  
40 and are not to be construed as restricting the invention to the transfer of engraved designs. We do not, however, broadly claim a printing-surface carrying a design thereon in part in intaglio or relief and in part re-  
5 versed, but desire to limit our invention in this respect to a printing-form embodying

these characteristics, but produced by impressing the design therein by a mechanical transfer process in contradistinction to cutting or otherwise producing said design. 50

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A printing-form, having its printing-surface divided into sections, and having in 55 one or more sections all or a portion of a single design impressed therein by a mechanical transfer process either in intaglio or relief, and in each remaining section all or a portion of the same design impressed therein 60 reversed, the printing portions of the one registering with the unprinting portions of the others, thereby constituting a single continuous design, substantially as set forth.

2. As an improvement in the printing art, 65 the process which consists in forming from a design-surface, a surface carrying the design in reverse, and forming from said reversed design-surface and a surface carrying the direct design, a printing-surface which con- 70 tains the design in part direct and in part reversed, substantially as set forth.

3. As an improvement in the printing art, the process which consists in forming from a 75 bed-piece carrying a design, a surface, then forming from said surface a second surface, and finally forming from said surfaces a printing-surface carrying all or portions of the said design in part direct and in part re- 80 versed, the printing portions of the one registering with the unprinting portions of the other to form a single design, substantially as set forth.

In testimony whereof we have hereunto set our hands in the presence of two subscribing 85 witnesses.

JUDAH TOURO ROBERTSON.  
HENRY GEORGE MANDEL.

Witnesses:

JOHN E. CURRIER,  
LOUIS B. GREGORY.