(No Model.)

C. SNEIDER.

Process of Producing Relief Line Printing and Embossing Plates.

No. 238,724. Patented March 8, 1881.

Fig. 1

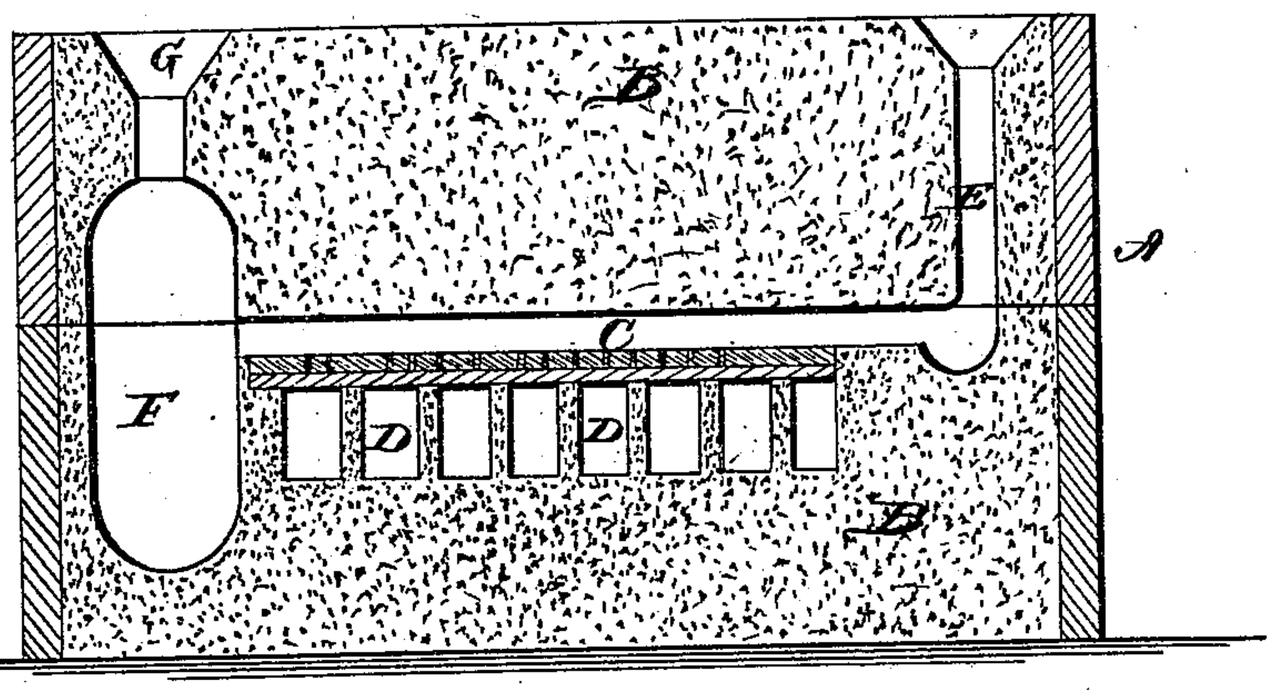

Fig. 2.

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UNITED STATES PATENT OFFICE.

CHARLES SNEIDER, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO DANIEL SLOTE, OF SAME PLACE, AND SAMUEL L. CLEMENS, OF HARTFORD, CONN.

PROCESS OF PRODUCING RELIEF-LINE PRINTING AND EMBOSSING PLATES.

SPECIFICATION forming part of Letters Patent No. 238,724, dated March 8, 1881.

Application filed December 9, 1880. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SNEIDER, of New York, in the county of New York, and in the State of New York, have invented certain new and useful Improvements in Processes for Producing Relief-Line Printing and Embossing Plates; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in the process of producing relief-line plates, types, and blocks for printing and embossing and other similar purposes; and it has for its objects to provide a method whereby a plate, type, or block may be cast in hard metal or alloy, such as brass, bronze, or the like, having the designs or letters clearly and sharply defined in relief, and whereby the occurrence of blow-holes, bubbles, and the like, as well as other imperfections so common to castings in hard metal, may be wholly obviated.

To this end my invention consists in the process more fully hereinafter set forth, and specifically pointed out in the claim.

Figure 1 represents a sectional view of a mold constructed with a matrix formed according to my invention, and Fig. 2 represents a plan view of the matrix, showing the designs in the face thereof.

To put my invention into practice I first take a plate of suitable size, constructed of glass or other suitable material which will be readily frangible under the influence of heat, and cover it with a coating, to any desired thickness, of material capable of being conveniently and properly worked or cut through in the desired lines of the designs or letters by means of a graver or otherwise. This material for coating or covering the plates may consist of any substance or composition which will possess the requisite qualities, and in practice I have found the following to answer well for general purposes, viz: ground brick or porous clay, one pound; whiting, one-half pound; plaster-of-paris, one-fourth pound. For the hardest alloys or metals a little more ground brick or clay may be employed. The composition is formed into plates or tablets of any desired size and shape, in any convenient manner, and is allowed to set, and is baked until properly hardened. It is then pasted, cemented, or otherwise secured to the glass plate. For this purpose the cement known as "stratena" will be found to answer well. When the cement has become thoroughly dried and the material fastened securely to the glass, the lines of the desired designs, types, or figures are cut through the compound to the surface of the glass by means of a graver or other instrument, after which the plate is set, with the glass surface downward, in the lower part of a flask filled with sand, and the sand leveled off even with the upper face of the compound plate, the sand below the plate being perforated in innumerable places previously, by means of a suitable instrument or pattern, in such manner as to form a large series of air-passages, while at the same time the intervening portions of the sand will form a backing to support the plate. The upper part of the flask, filled with sand as usual, in which is formed a space of a size equal to the back or body of the plate to be produced, is then placed upon the lower part and the two secured together in the ordinary manner. A gate is constructed at the adjoining edges of the two flasks, on a line with the upper face of the compound plate, so that the metal to be cast, when poured in, will flow evenly over the said upper surface of the plate and carry the air before it, and thus come in intimate contact with the entire surface, a pool or receptacle for the superfluous metal being formed on the side of the mold opposite the gate, in which such metal collects. As the fluid metal thus passes over the face of the compound plate it will be evident that it will fill the lines, forming the designs or letters therein, to the exclusion of the air, while the heat of the metal will break the glass of the said compound plate to such an extent as to admit of the passage of air through the same, while it leaves the body virtually intact, so as to preserve its form and prevent the escape of the metal, and by which the gases developed by the hot metal may escape, relieving the metal of the press-

ure generated by such gases and effectually obviating the blow-holes, which would otherwise be formed in the face of the completed type or block, the first portion of the metal flowing into the receptacle and collecting therein, carrying all slag with it.

In order to facilitate the breaking of the glass, the back of the same may be scored or scratched by means of a diamond or other suitable tool previous to the insertion of the compound plate in the flask.

In the drawings, the letter A indicates a flask of ordinary construction, B the sand therein, and C the matrix embedded in the lower part of the mold.

The letter D indicates the passages at the rear of the matrix, for the escape of the gases when the destructible backing is broken.

The letter E indicates a gate at one side of the mold, and F the pool or receptacle at the opposite side for the superfluous metal, the said pool being open at the top, as indicated by the letter G.

In the present application I do not claim the matrix, nor the peculiarly-constructed mold, as these form the subject-matter of separate applications.

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

The process of producing relief-line plates, blocks, or types for printing or embossing, the same consisting in securing a plate of suitable substance upon a plate of glass or other material frangible under the influence of heat, engraving the design in said substance down to the supporting-plate, placing the same in a mold in a suitable flask provided with a gate for the introduction and a receptacle for the superfluous metal, and pouring the metal into the mold so as to pass over the face of the matrix before cooling thereon, substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of November, 1880.

CHAS. SNEIDER.

Witnesses:
J. J. McCARTHY,
H. J. ENNIS.