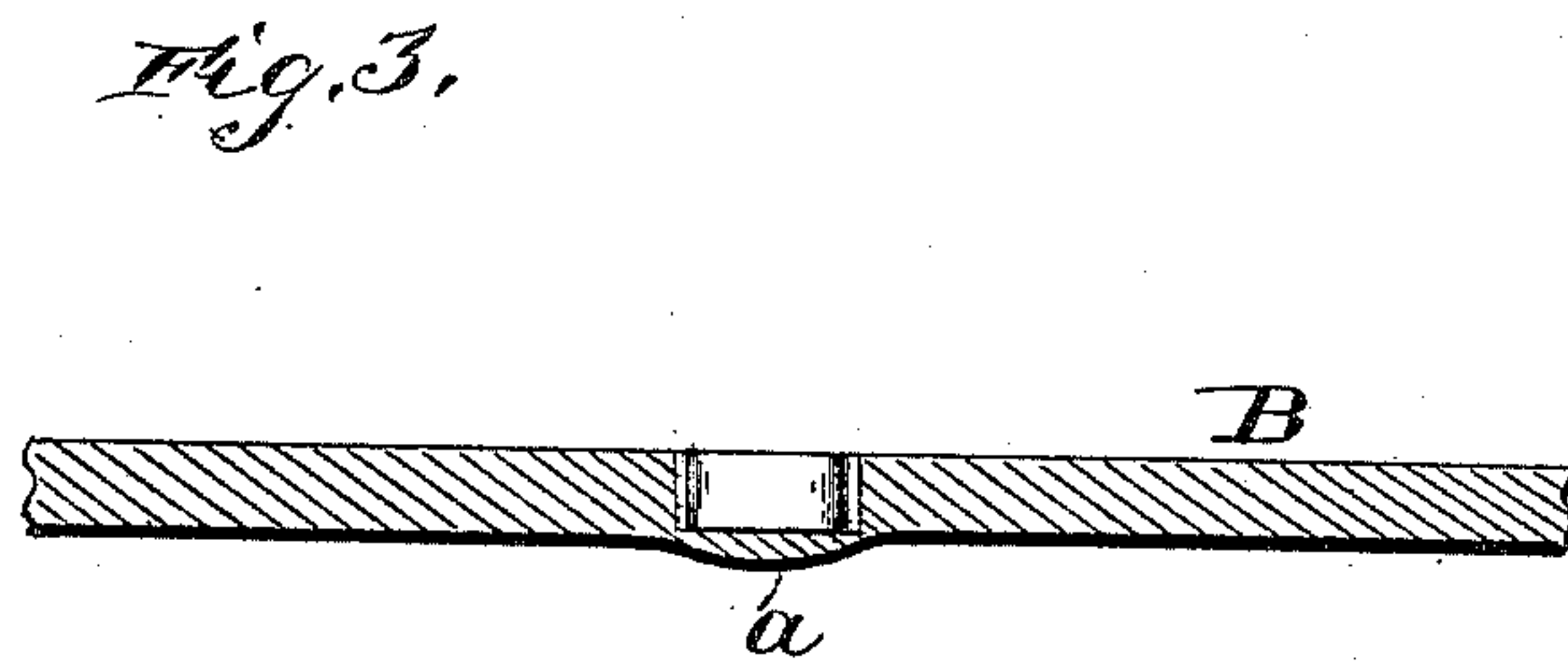
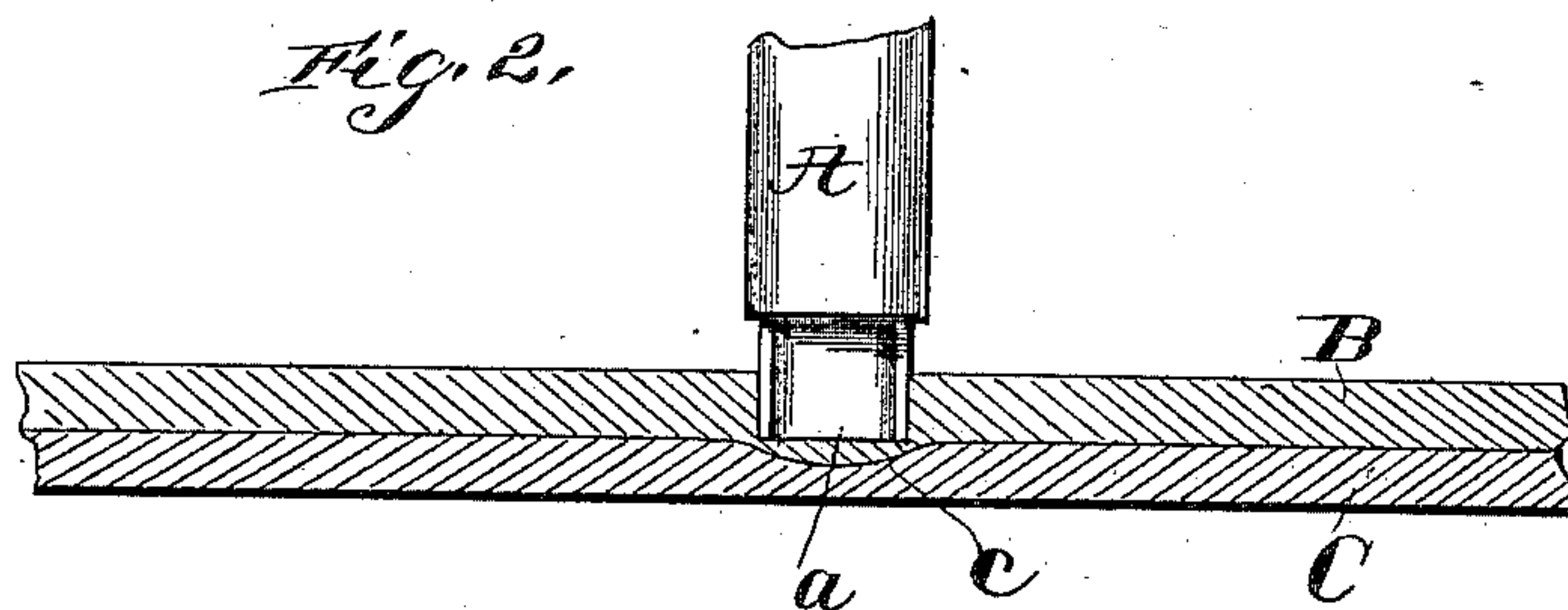
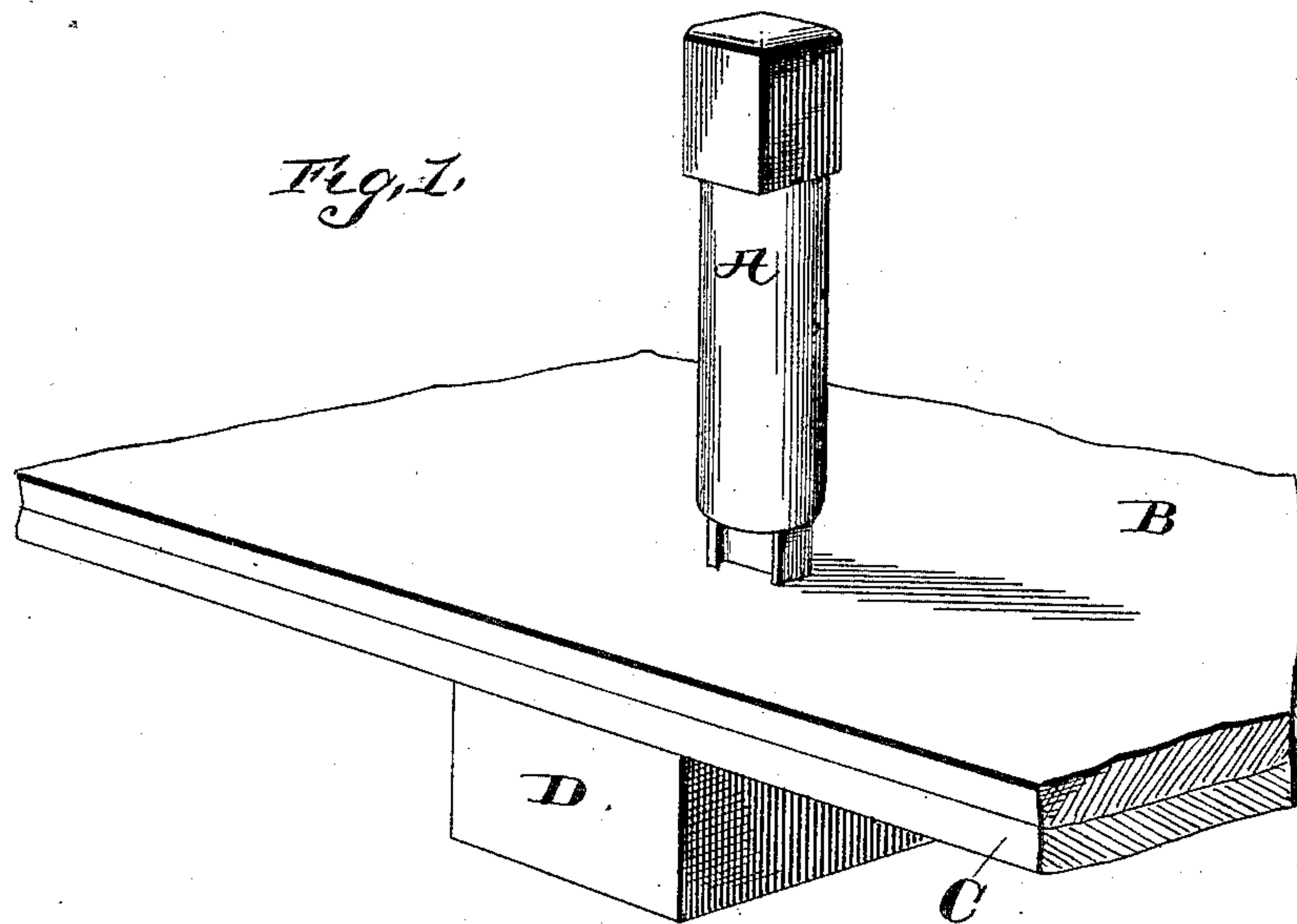


(No Model.)

G. A. GOODSON, A. S. CAPEHART & C. L. TRAVIS.
ART OF FORMING MATRICES FOR STEREOTYPE PLATES.

No. 427,682.

Patented May 13, 1890.



Witnesses

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UNITED STATES PATENT OFFICE.

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OF MINNEAPOLIS, MINNESOTA, ASSIGNORS TO THE MINNEAPOLIS ELECTRO-MATRIX COMPANY, OF SAME PLACE.

ART OF FORMING MATRICES FOR STEREOTYPE-PLATES.

SPECIFICATION forming part of Letters Patent No. 427,682, dated May 13, 1890.

Application filed March 29, 1889. Serial No. 305,256. (No model.)

To all whom it may concern:

Be it known that we, GEORGE A. GOODSON, a citizen of Canada, and ALEXANDER S. CAPEHART and CHARLES L. TRAVIS, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in the Art of Forming Matrices or Molds for Stereotype-Plates; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to the art of forming molds or matrices for stereotype-plates to be used in printing, and more particularly to that branch of the art in which the said matrices or molds are made by impressing the characters successively into the matrix material.

In order that the mold or matrix may be adapted to produce a satisfactory printing-plate, the characters must be sunk to a uniform depth and must remain of their original form and depth until the cast is taken. It is found that when successive impressions are made in materials having no elasticity whatever each succeeding impression crowds or forces the material back upon the previously-formed impression, distorting the bottom and side walls of such previously-formed impression, so that perfect results cannot be obtained. It is also found that under the conditions under which materials—such as wood or card-board—possessing a certain amount of elasticity have been heretofore employed, and under the modes of procedure heretofore followed in using the same, notwithstanding the impressions all may have been made of an equal depth, a plate cast therefrom will be found to have the faces of the characters not in the same plane. The printing-surface will, therefore, be uneven and satisfactory results cannot be obtained therefrom. To obviate these difficulties when using this latter class of material is the object of our present invention, and in carrying the same into practice we prefer to employ

card-board, paper, or papier-maché in a comparatively thin sheet. Instead of supporting this matrix-sheet directly on a solid unyielding anvil or support when making the impression, we place the same loosely upon a backing-sheet of yielding material, preferably of little or no elasticity, and then place this backing-sheet with the matrix-sheet upon it on a rigid anvil or support. The two sheets are commonly held together by suitable guides or clamping devices at the edges, but they are otherwise left free and unconnected, so that the surfaces in contact can move one upon the other, and the dies are preferably given such an extent of movement as to force the material of the matrix-sheet outward to some extent into the yielding backing-sheet, so that each impression will be represented on the reverse side by an elevation or embossing.

In molds or matrices made in the manner and of the material above described it is found that the successive impressions are of absolutely the same depth and that they retain their depth and form after the dies are withdrawn. The matrix material being in a thin sheet when placed in a suitable casting frame or box, the weight of metal used to form the stereotype-plate will press the same evenly against the supporting-surface upon which it is placed, so that the resulting casting will have the configuration desired and the face of the type will be even and possess all the requirements for the highest class of printing.

In the accompanying drawings, Figure 1 is a perspective view of the matrix-sheet, the backing-sheet, the die, and the anvil. Fig. 2 is a partial elevation of the die with the matrix and backing sheets in section. Fig. 3 is a section through the matrix-sheet.

In the figures, A designates the die, B the matrix-sheet, C the backing-sheet, and D the stationary anvil. During the formation of the matrix as already stated, the sheet B lies upon the backing-sheet C, which in turn is upon the rigid anvil D, as shown in Fig. 1. With these parts in this position the die is forced or driven into the face of the matrix-

sheet opposite the anvil, so as to form a character matrix or indentation. It will be seen that the material of the matrix-sheet is forced downward or outward on the back opposite the character as shown at *a*, a corresponding impression being made in the face of the supporting or backing sheet, as shown at *c*. A portion of a completed matrix-sheet is shown in Fig. 3 with a matrix in one face and an elevation corresponding thereto on the opposite face.

It is to be distinctly understood that any form of machine for forming matrices or impressions may be employed and that any suitable material may be employed for the matrix-sheets, care being taken that they shall be of such character as to receive and retain the impression of the dies and that the backing-sheet shall be of a yielding character.

What we claim, and desire to secure by Letters Patent, is—

1. The method of forming stereotype molds or matrices, consisting in supporting a matrix-sheet of card-board or similar material on a second independent sheet of yielding material and embedding the dies successively into the face of the first-named sheet, substantially as described.

2. The method of forming stereotype molds or matrices, consisting in supporting two independent sheets of card-board or like material upon a fixed anvil or support and embedding the dies successively into the face of the upper sheet, substantially as described.

3. The method herein described of forming

type-matrices in card-board or analogous material, which consists in forcibly driving the type-dies successively into the face of the matrix-sheet while the latter is seated upon an independent underlying support of yielding material, the said yielding material being sustained at its back by and movably upon an unyielding support.

4. In the art of forming matrices for stereotype-plates, the process of forming card-board or analogous matrix-plates, which consists in supporting the matrix card or sheet on a yielding bed and forcing the dies successively into the card or sheet so as to form embossed portions on the reverse side of the card or sheet, substantially as described.

5. In the art of forming matrices for stereotype-plates, the process of forming card-board matrix-plates, which consists in supporting matrix cards or sheets on a rigid bed with a sheet of similar character interposed between them and forcing the dies successively into the card or sheet to an extent sufficient to produce embossed or erected portions on the reverse side of the matrix card or sheet.

In testimony whereof we affix our signatures in presence of witnesses.

GEORGE A. GOODSON.

ALEXANDER S. CAPEHART.

CHARLES L. TRAVIS.

Witnesses:

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