

Aug. 2, 1932.

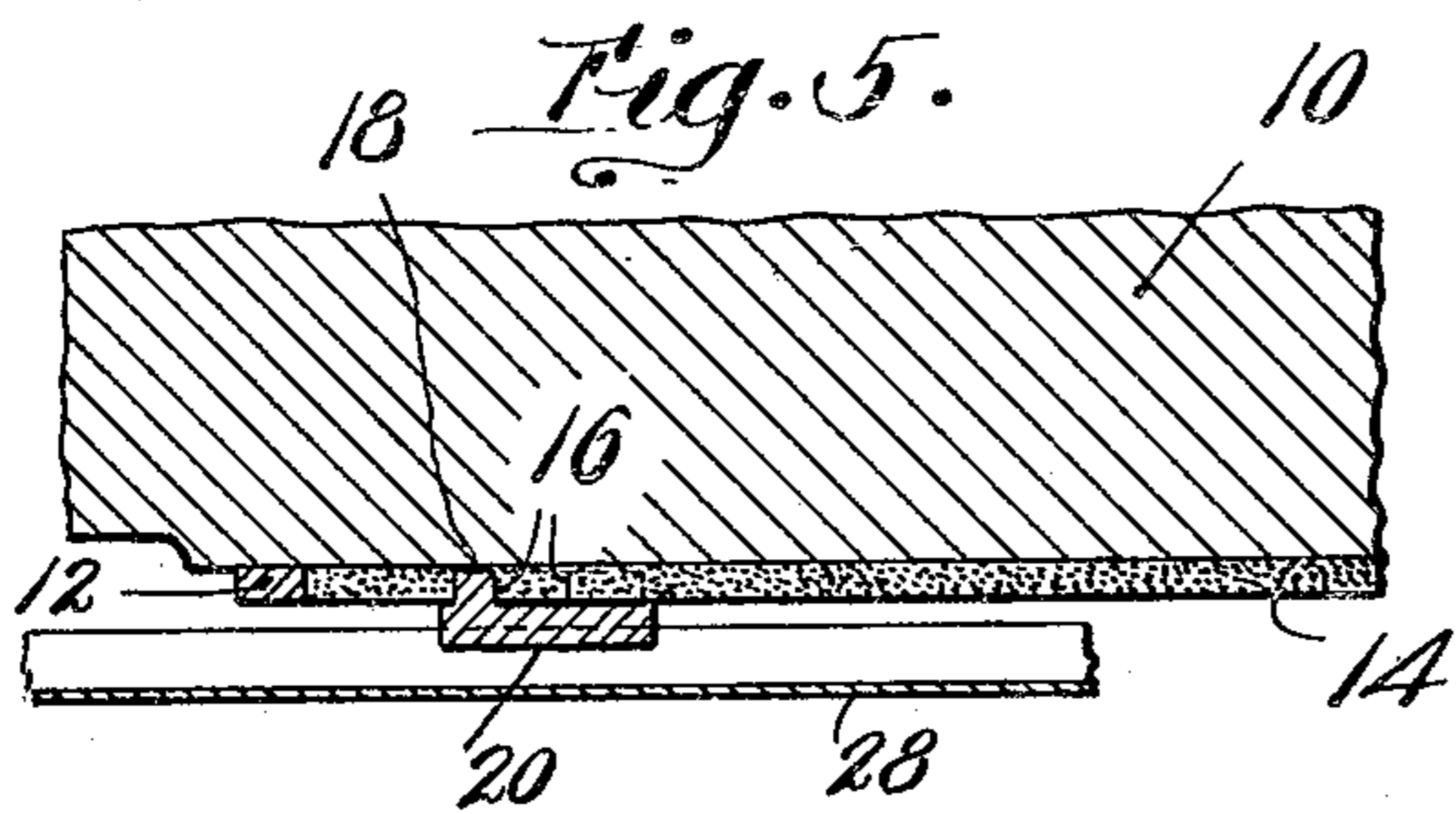
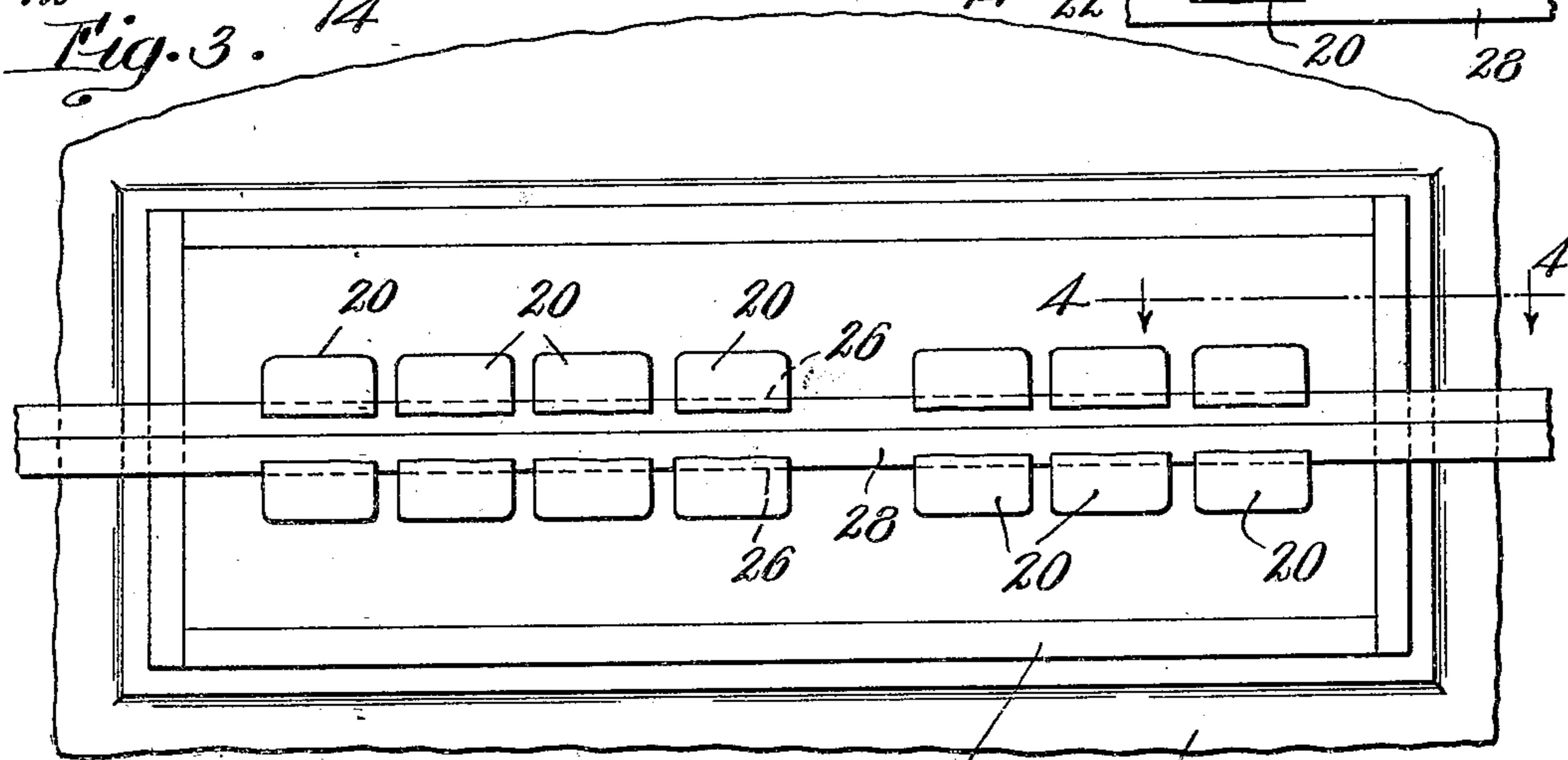
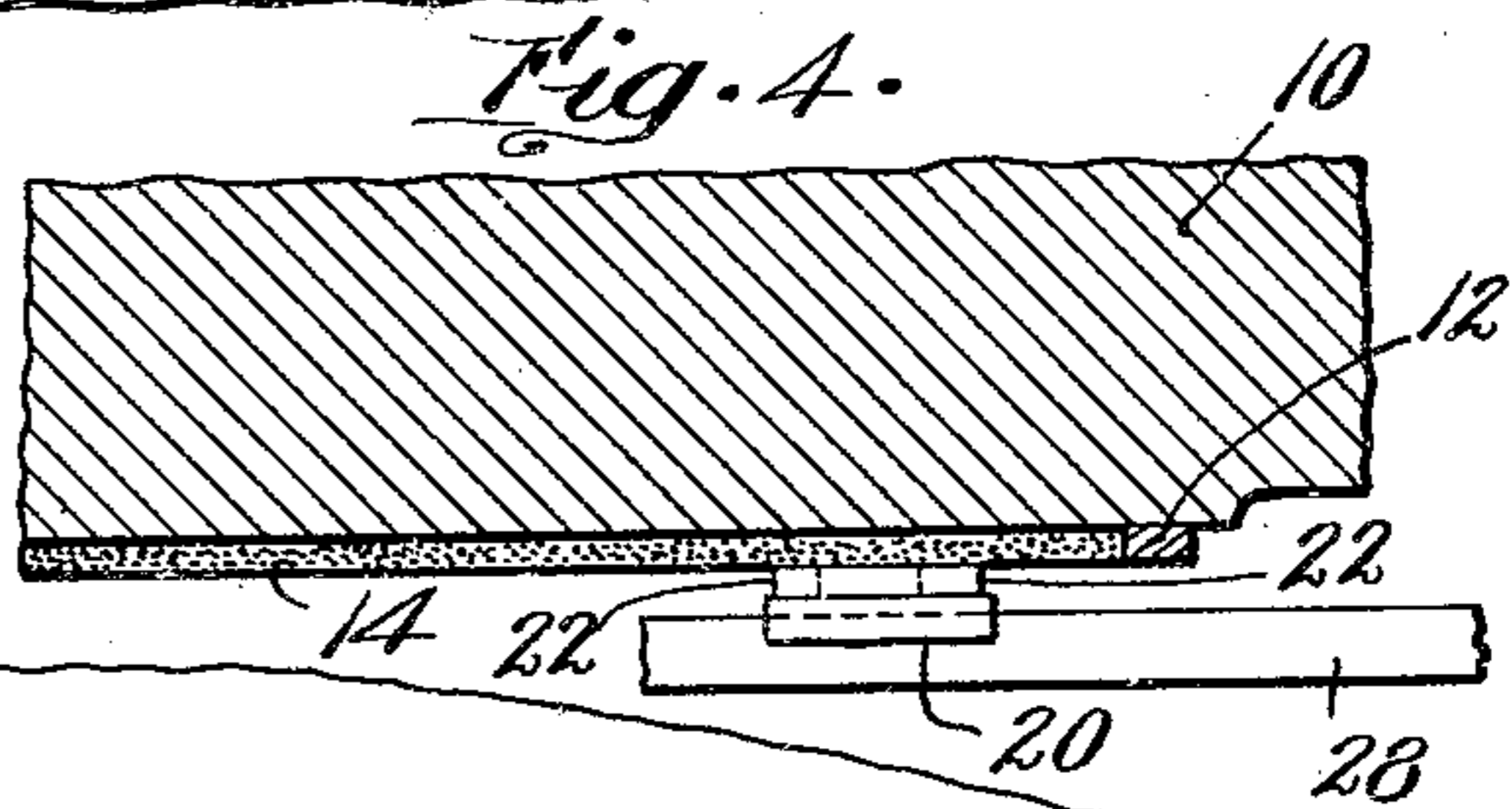
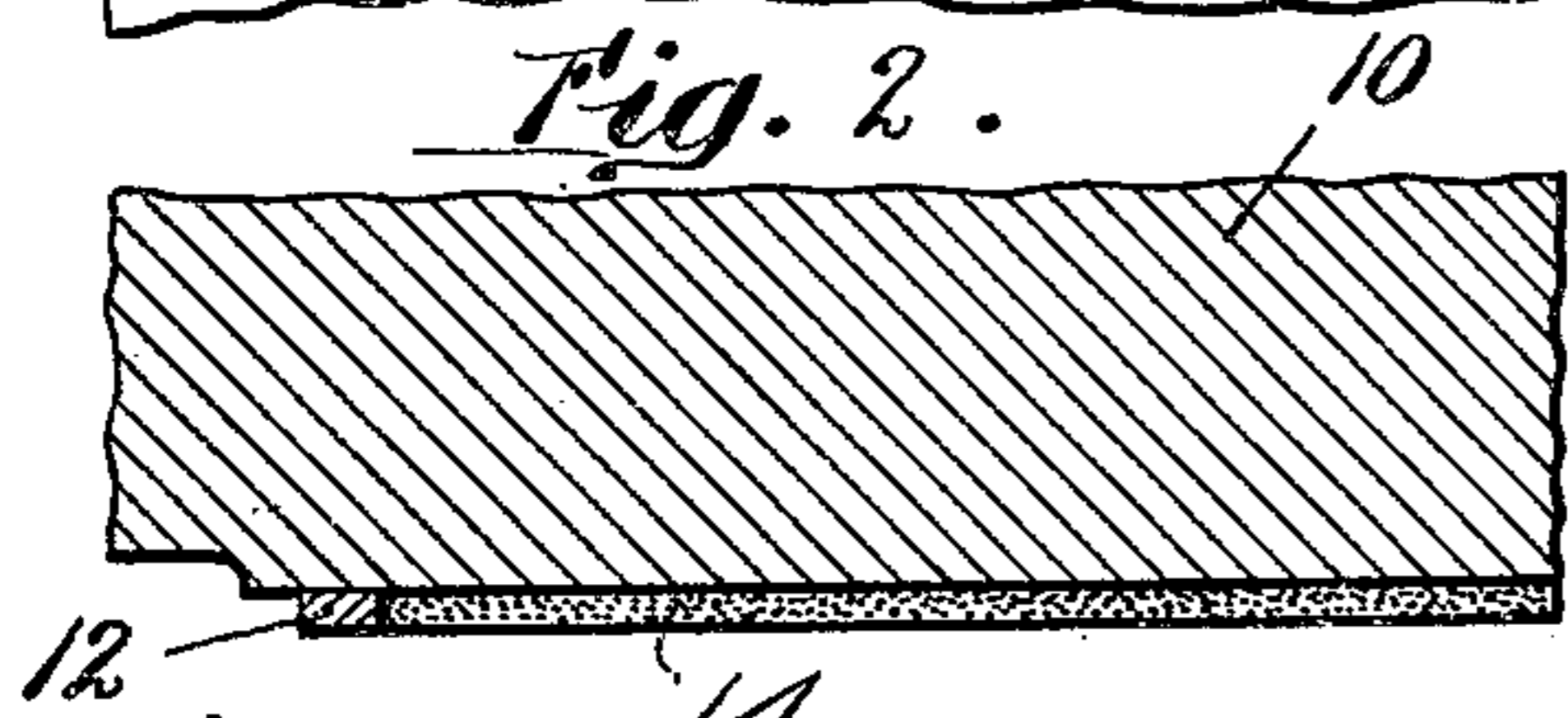
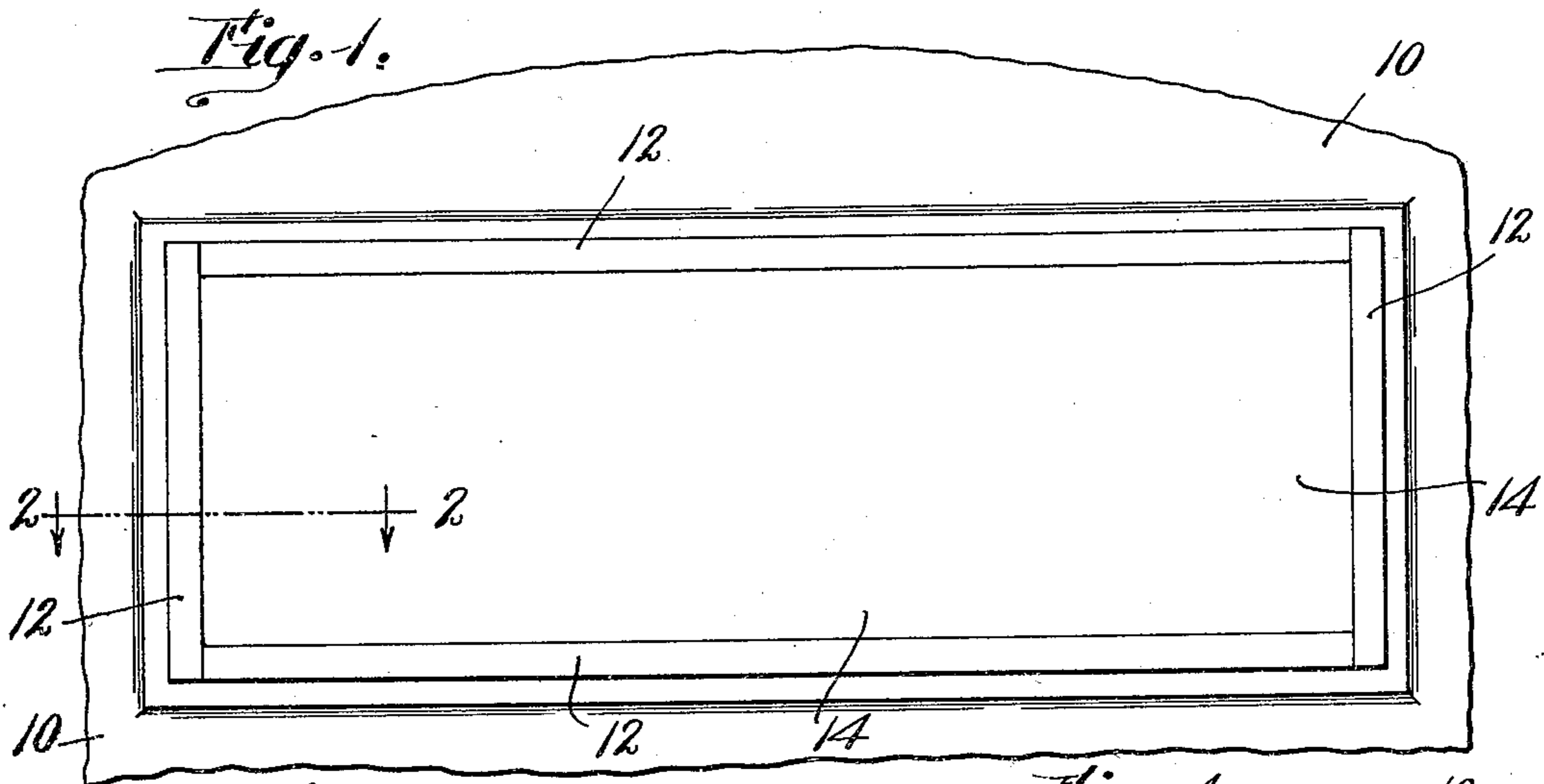
T. JELLOW ET AL

1,869,695

METHOD OF FORMING DESIGNS IN SURFACES

Filed April 6, 1929

2 Sheets-Sheet 1



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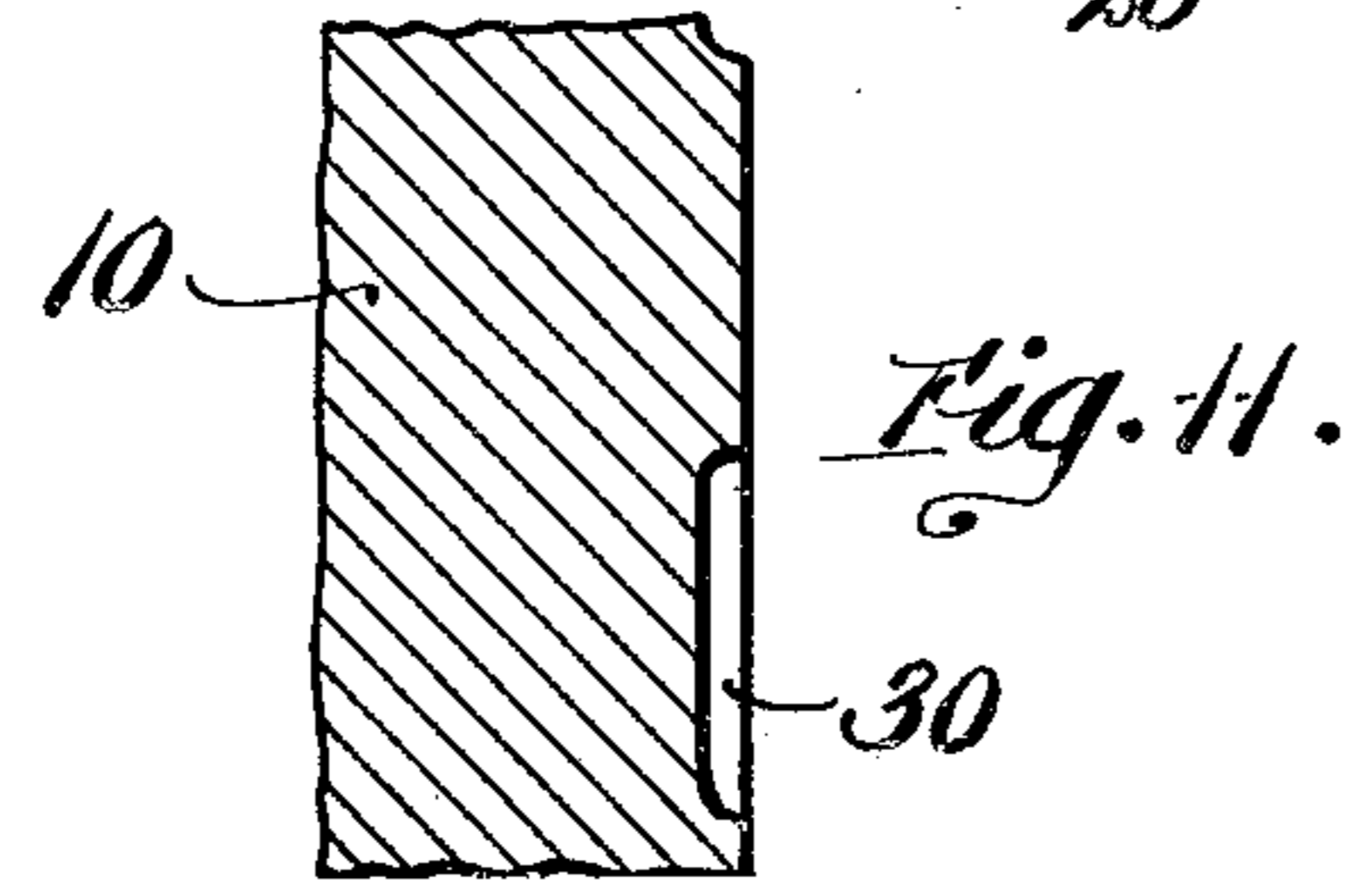
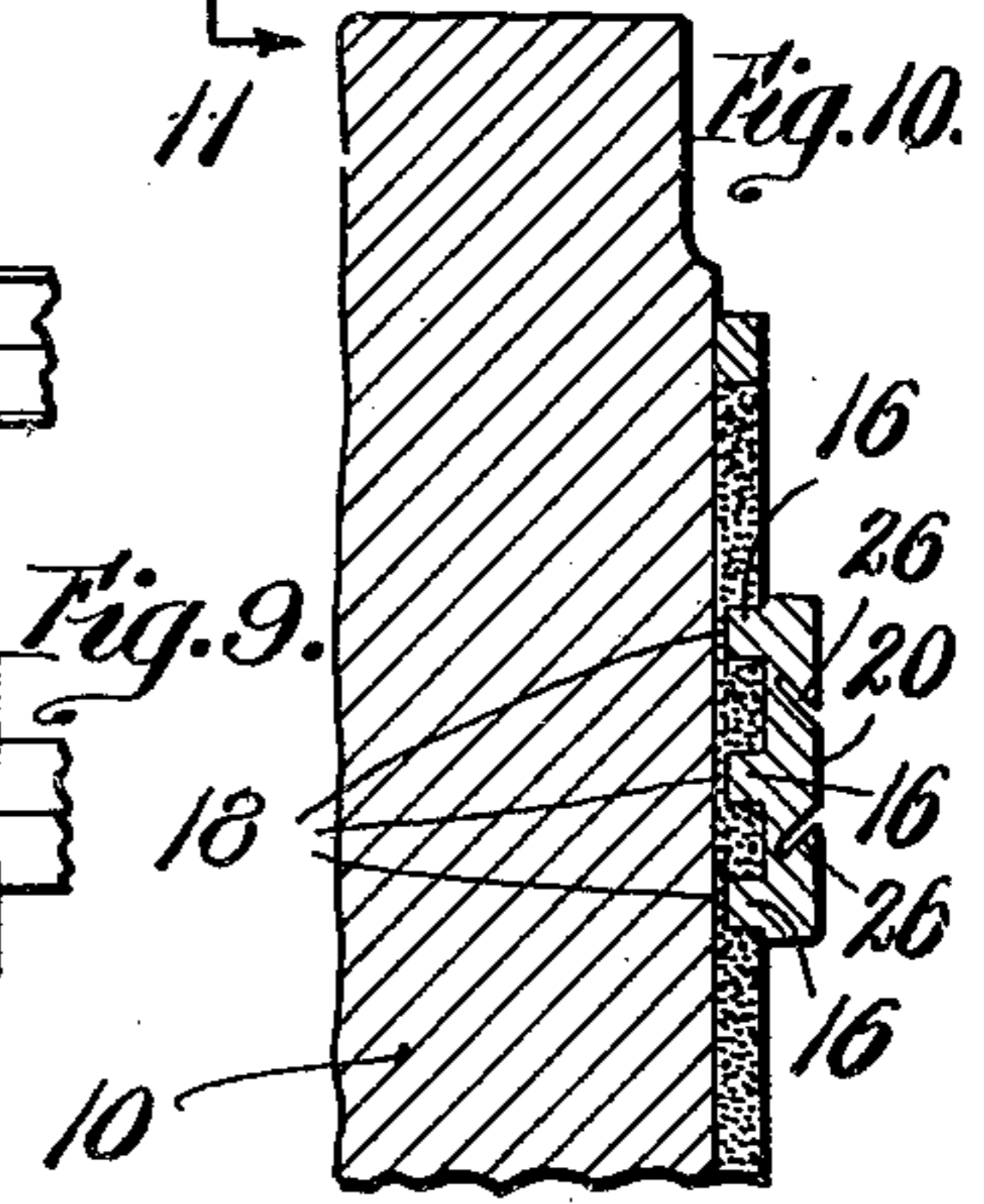
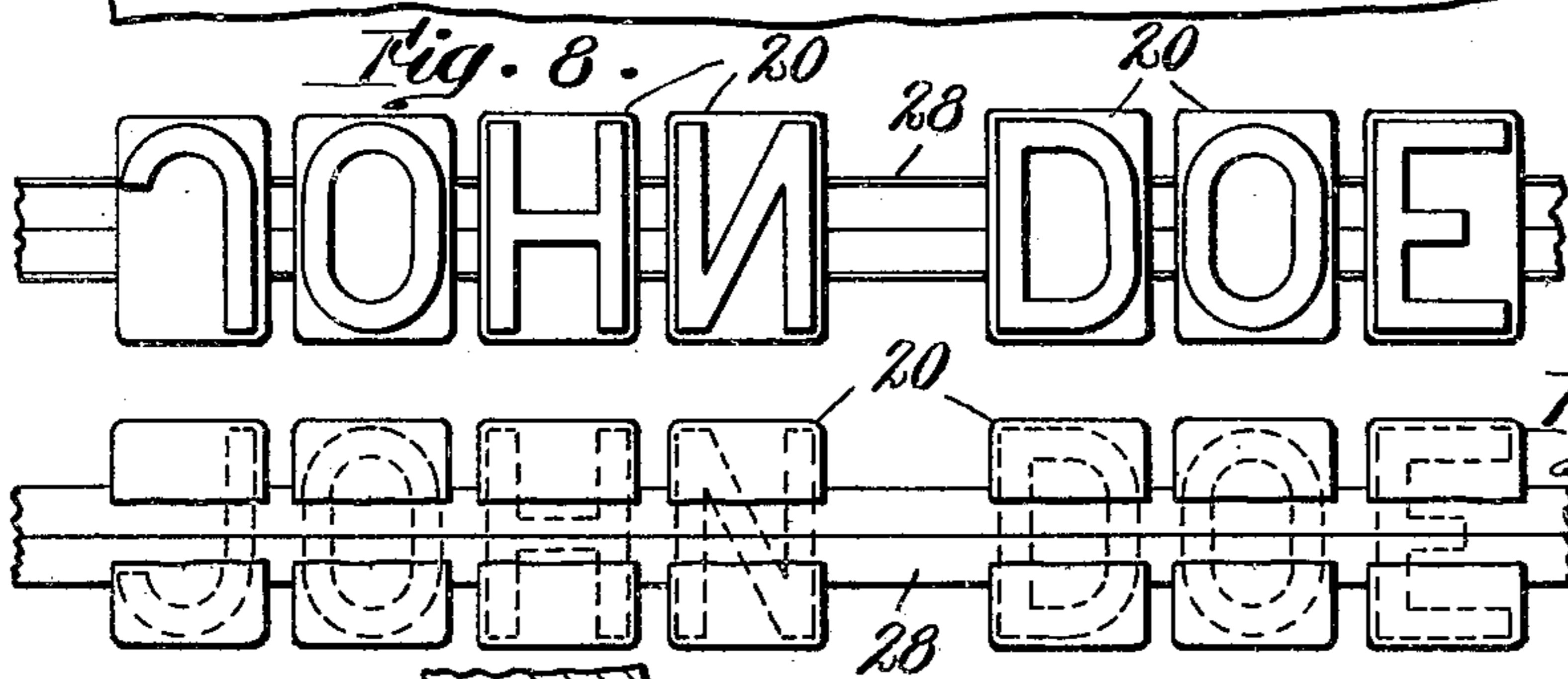
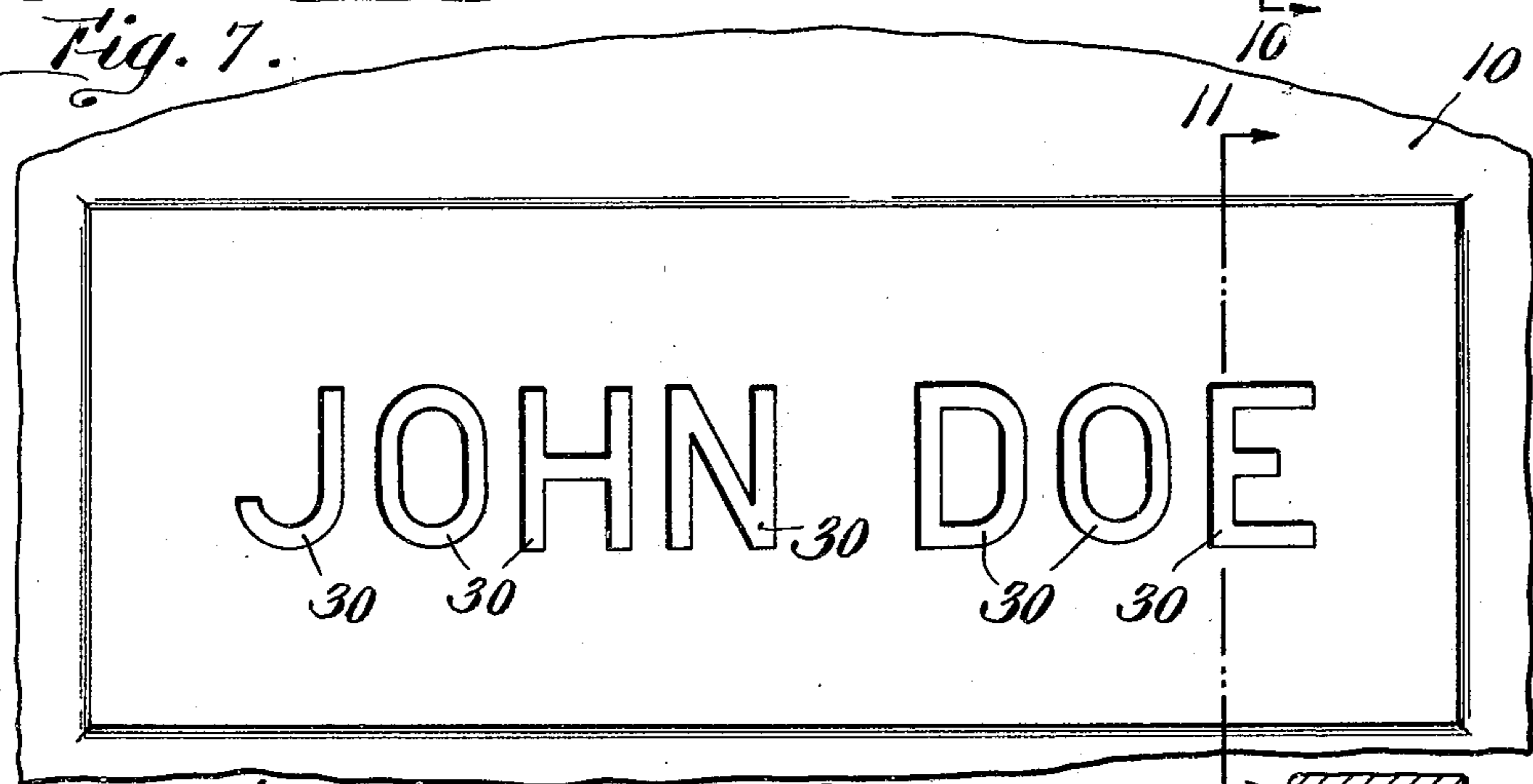
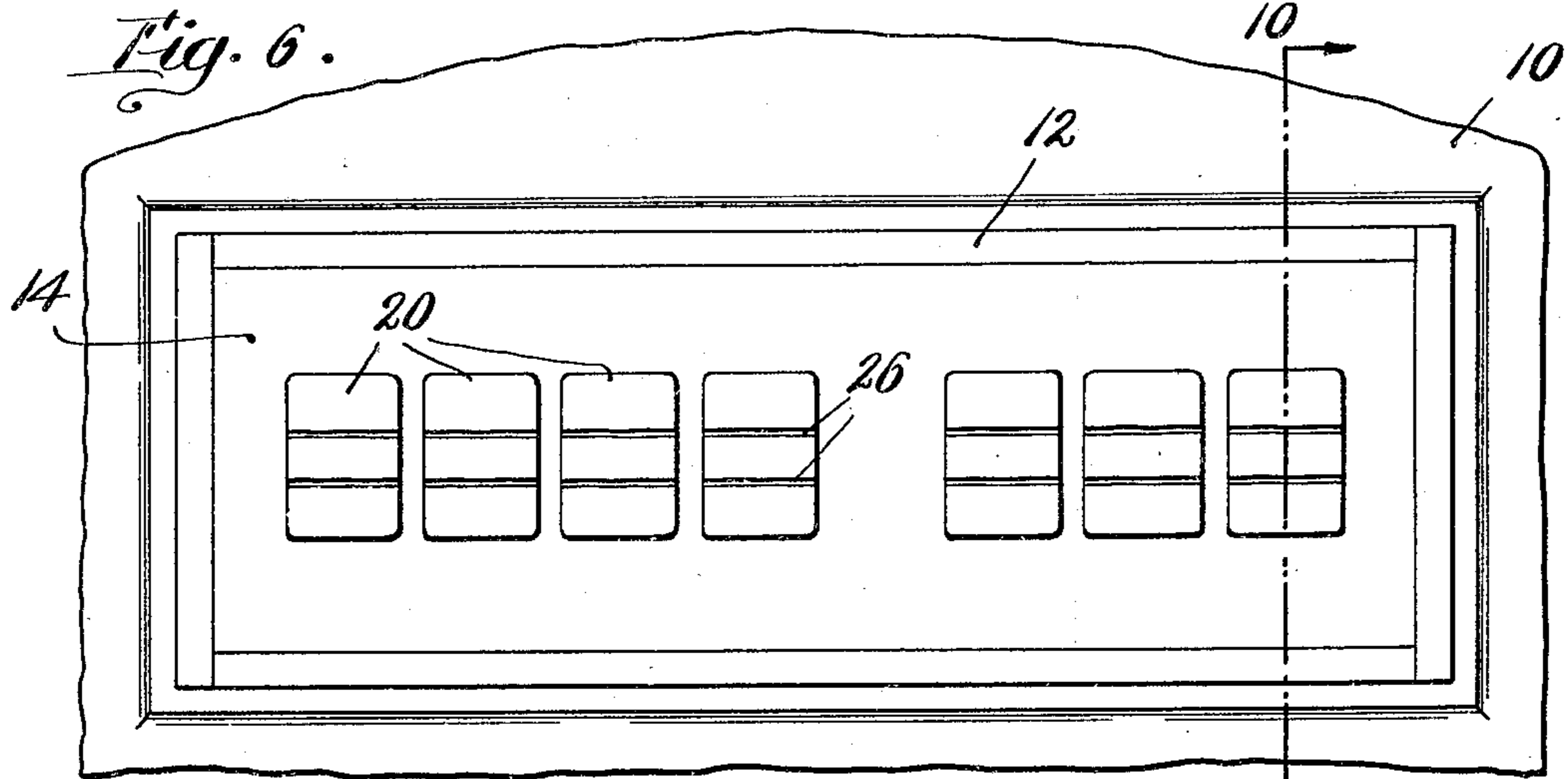
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METHOD OF FORMING DESIGNS IN SURFACES

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2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE

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## METHOD OF FORMING DESIGNS IN SURFACES

Application filed April 6, 1929. Serial No. 353,095.

This invention relates to a method of forming inscriptions or designs in intaglio in a surface such as monumental stone.

The invention has for an object to provide a novel and superior method of the character specified, utilizing a sand or similar blast for performing the cutting operation and by which the desired inscription or design may be cut in the surface in a minimum time, at a minimum cost, and with less effort than by any prior method of which we are aware.

With this object in view and such others as may hereinafter appear, the invention consists in the method hereinafter described and particularly defined in the claim at the end of this specification.

In the drawings which illustrate the method as applied to the cutting of an inscription in the surface of the monumental stone:

Fig. 1 is a plan view looking down upon the stone as it rests in a horizontal position with the protective layer covering the surface to be inscribed;

Fig. 2, a sectional detail on the line 2—2, Fig. 1;

Fig. 3, a plan view similar to Fig. 1, illustrating the use of a row of preformed die members for forming depressions in the protective layer prior to the sand blasting operation;

Fig. 4, a sectional detail on the line 4—4, Fig. 3, showing one of the die members ready to form a depression in the protective layer;

Fig. 5, a similar detail showing the raised and letter-forming portion of a die member sunk into the protective layer to form a depression;

Fig. 6, a plan view of the monumental stone showing a row of the die members with their raised letter-forming portions sunk into the protective layer;

Fig. 7, a plan view showing the inscription cut in the stone;

Fig. 8, a plan of a row of the die members mounted upon a bar, showing the relative position assumed by the letters;

Fig. 9, a plan of the die members and bar shown in Fig. 8, after the same have been in-

verted ready to be pressed into the protective layer;

Fig. 10, a sectional view taken on the lines 10—10, Fig. 6, and

Fig. 11, a sectional view taken on the line 11—11, Fig. 7.

It has heretofore been the practice in cutting inscriptions or designs in monumental stone and other surfaces by the use of a sand blast, to protect those portions of the surface which are not intended to be cut, by a protective layer such as a layer of gelatin.

After the application of the protective layer, the inscription or design is cut out of the protective layer using a knife, to thereby expose the stone to the direct action of the blast.

This method causes considerable trouble, consumes time, and is expensive in order to produce an accurate and satisfactory reproduction of the desired design or inscription in the stone, and in general the present invention aims to provide a more simple, convenient and practical method of accomplishing the result.

In accordance with the present method the surface is first covered with a protective layer of a material such as gelatin and of a thickness sufficient to protect the surface from the action of the sand-blast. After the application of the protective layer, the desired design or inscription is first formed in the protective layer by the use of die members sunk into the surface of the protective layer sufficiently to form depressions corresponding to the design or inscription and at the same time reducing the thickness of the gelatin or other protective material under the die member to a thinness such as to permit the sand-blast to readily cut therethrough and into the surface of the stone to form the design or inscription. The die member comprises a friable material which can be readily cut by the sand-blast, such as plaster of Paris, or other cementitious material.

The sand-blasting operation may be performed directly upon the friable die member to cut through the die member and through the relatively thin section of gelatin constituting the bottom wall of the depressions in



the gelatin corresponding to the design or inscription.

The friable die members are preferably formed to be removably mounted upon a V-shaped metal bar and to be capable of being slid thereon, properly spaced and aligned, and by which a plurality of the die members making up the inscription can be laid on the gelatin layer and permitted to sink into the latter by gravity or by the application of pressure preferably when the bar and die members are heated sufficiently to soften the gelatin thereunder.

Referring now to the drawings 10 represents a monumental stone in the surface of which the inscription or design is to be cut in accordance with the present method, and as herein shown for purposes of illustration such inscription or design comprises the words "John Doe".

In practising the method, that portion of the surface of the stone against which the sand-blast is directed is covered with a protective layer of a material such as gelatin and this may be conveniently accomplished by laying the stone in a horizontal position, providing a dam or enclosure 12 upon the surface thereof and pouring a known fluid gelatin composition into the space within the dam to cover the surface within the dam with a substantially uniform layer of the gelatin of a substantial thickness sufficient to withstand the action of the sand-blast and to protect the underlying surface of the stone.

After the protective layer, herein marked 14, has been applied in the manner described, provision is made for forming depressions 16 in the gelatin layer corresponding to the design or inscription which it is desired to cut in the surface of the underlying stone, so that the portion 18 of the gelatin layer at the bottom of the inscription or design is reduced in thickness to a point such that the operation of the sand-blast will readily cut through such reduced portion and into the surface of the stone to form the design or inscription therein.

In order to form these depressions 16 in the surface of the gelatin, preformed die members 20 having raised letters or characters 22 comprising the inscription or the design, are arranged to be pressed into the surface of the gelatin, preferably utilizing heat to soften the gelatin so that the raised position 22 upon the die members form depressions in the gelatin itself.

The gelatin layer 14 may be heated by means of a blow torch whose flame is moved over the surface of the protective layer.

In practice the individual die members are composed of friable material such as plaster of Paris or other cementitious material which may be molded to provide the desired raised letter or character 22 and the back of the die members are preferably provided with in-

clined slots 26 adapted to permit the die members to be slid upon a V-shaped supporting bar 28 of metal, to be thereby aligned and arranged with respect to one another to form the desired inscription or design in the underlying gelatin into which they are pressed either by pressure or by gravity.

In order that the inscription or design may be impressed into the gelatin or other protective layer by the die members 20 upon the bar 28 in such manner that the inscription will be correctly arranged upon the face of the stone, those die members 20 having raised letters of unsymmetrical nature will be inverted when supported upon the bar 28 in the manner illustrated in Fig. 8 while those die members having symmetrical letters or characters thereon need not be so inverted. As a result, when a row of the die members, such as illustrated in Fig. 8, are turned over into a position such as illustrated in Fig. 9, the desired inscription shown in Fig. 7 will be produced in the gelatin or other protective layer.

The bar 28 may then be removed as represented in Fig. 6, and the die members subjected to the action of the sand blast, whereupon the die members being of cementitious material will be destroyed by the sand blast and the latter will cut through the thin section 18 of gelatin lying at the bottom of each depression in the gelatin, as represented in Fig. 10, and cut recesses 30 in the surface of the stone to form the desired design or inscription therein.

While the present invention is preferably applied to the above described process of cutting a design in monumental stone, it is to be understood that it may be applied for other purposes within the scope of the following claim.

Having described the invention, what is claimed is:

The method of inscribing the surface of stone or like material which consists in covering the surface with a protective layer, then assembling a plurality of friable die members upon a rigid supporting member to align the same, then impressing the die members while thus assembled into the protective layer to form depressions therein, then removing the supporting member, and subsequently sand-blasting through the die members and depressions and into the underlying surface of the stone.

In testimony whereof, we have signed our names to this specification.

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