

No. 753,368.

PATENTED MAR. 1, 1904.

G. R. CORNWALL.
ART OF PLANOGRAPHIC PRINTING.
APPLICATION FILED NOV. 11, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

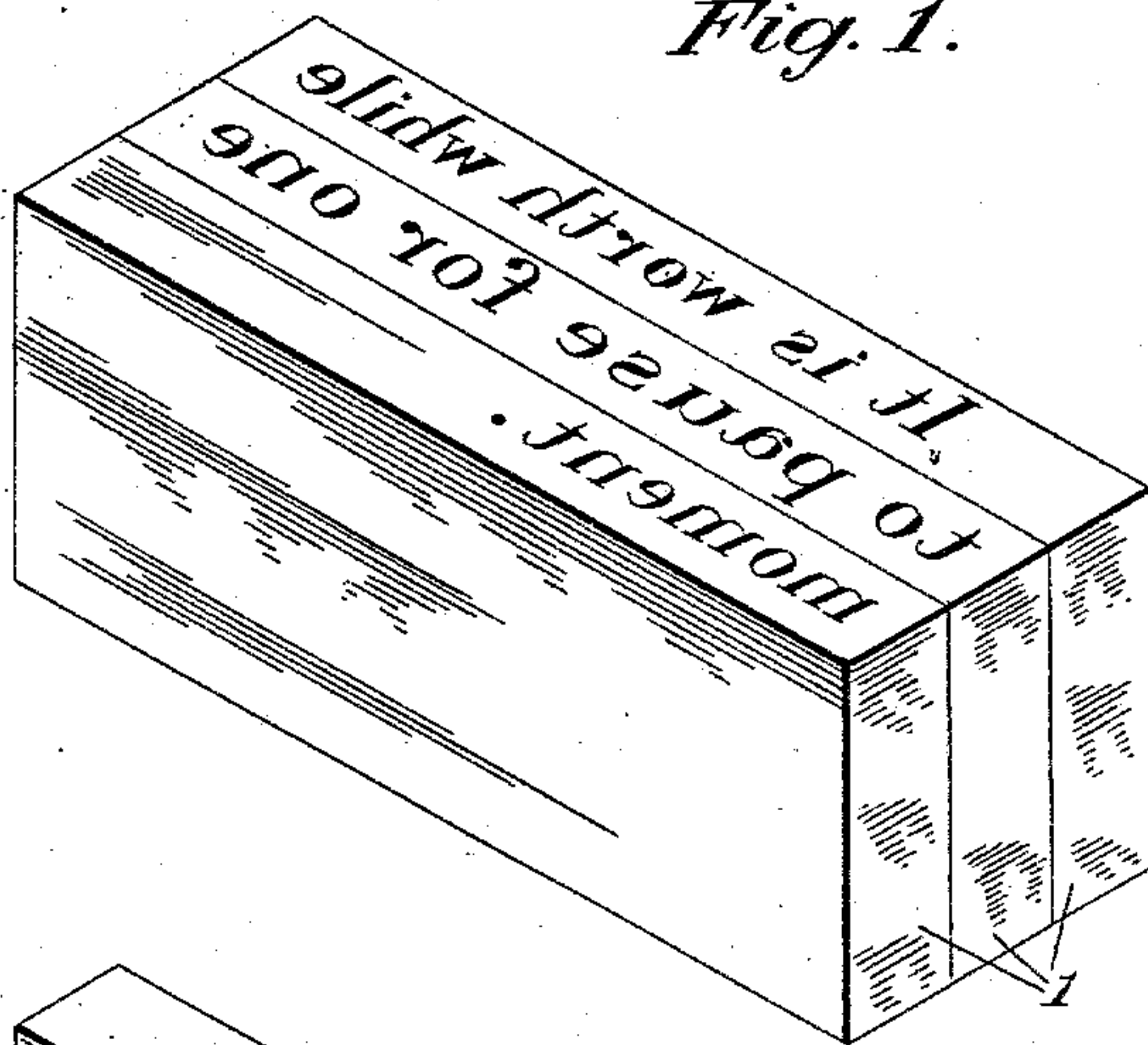


Fig. 2.

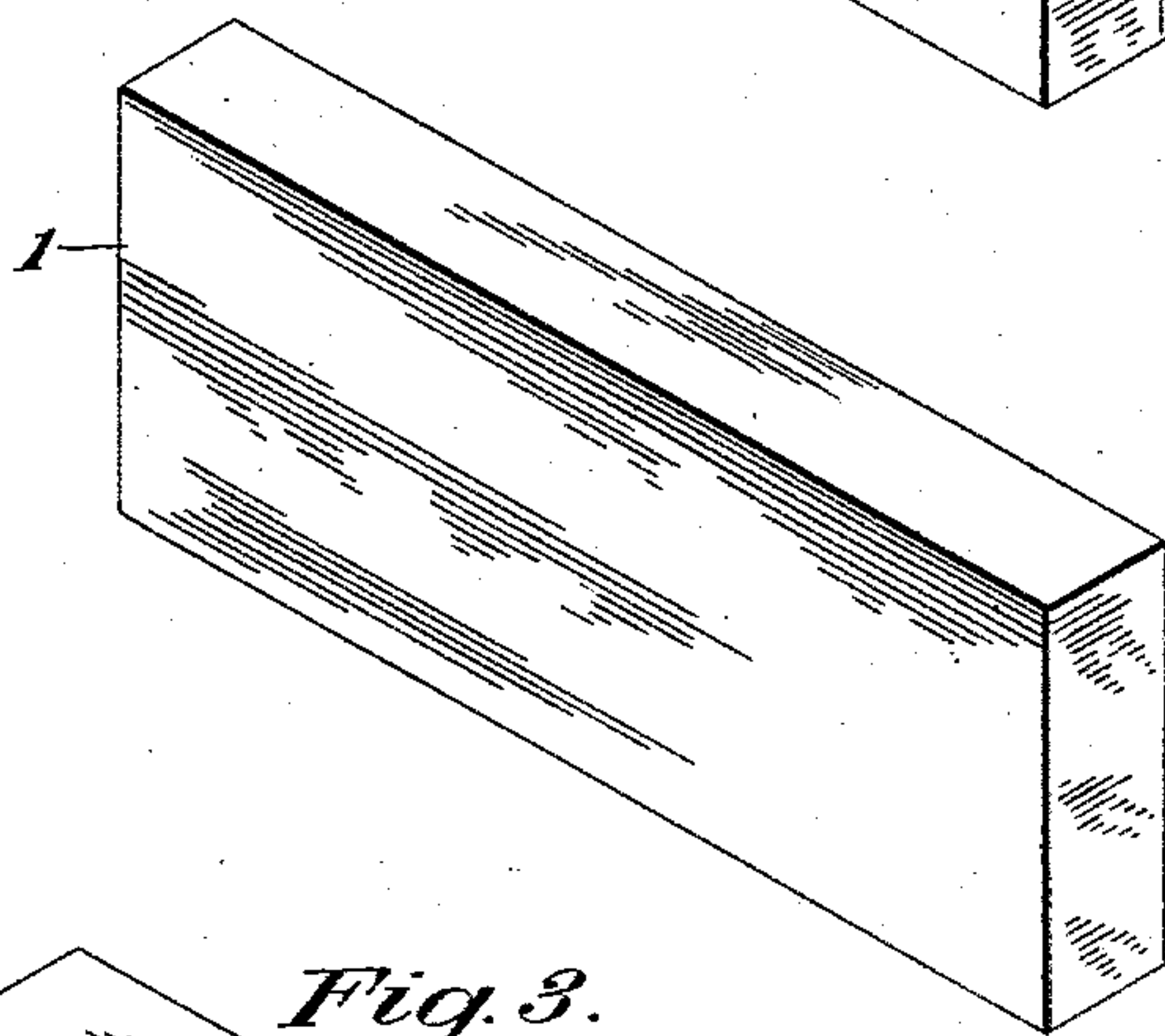


Fig. 3.

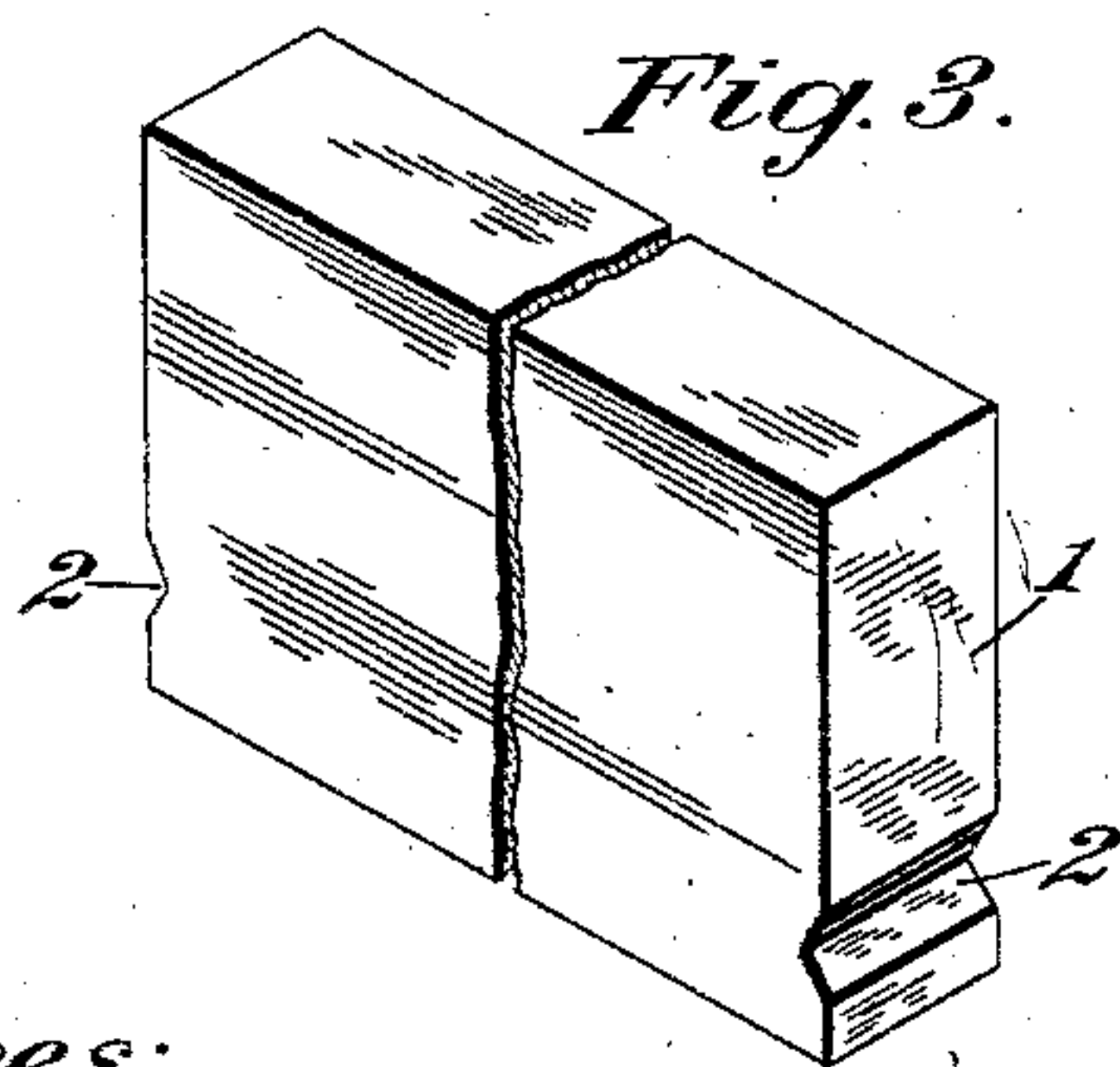
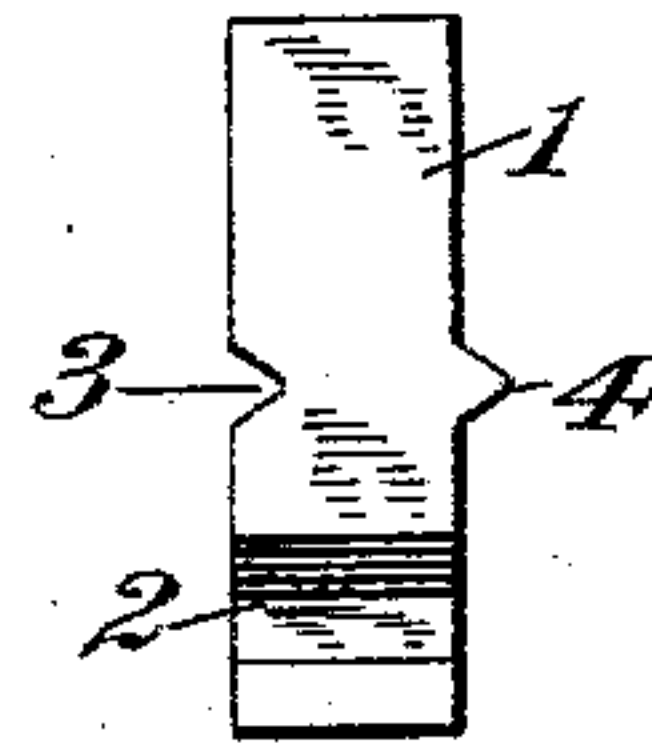


Fig. 4.



Fig. 5.



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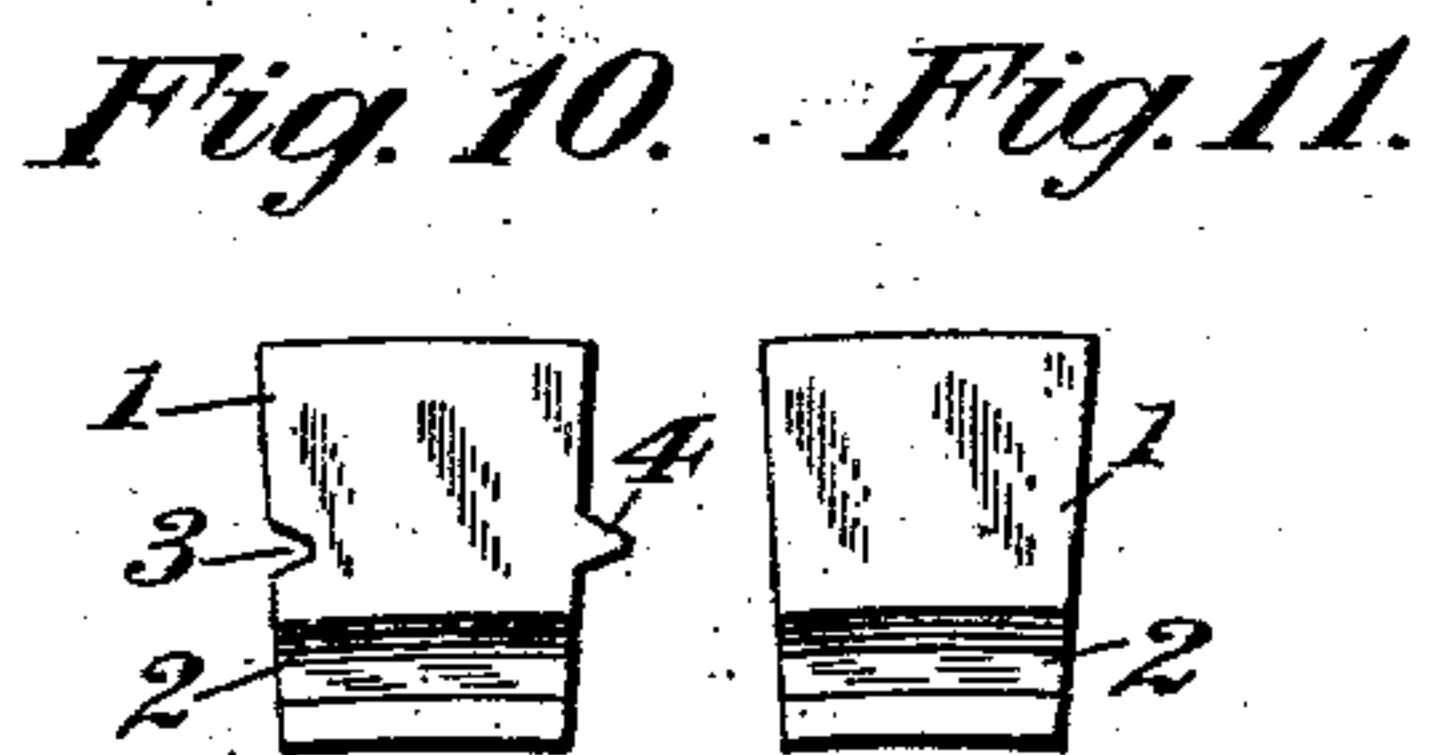
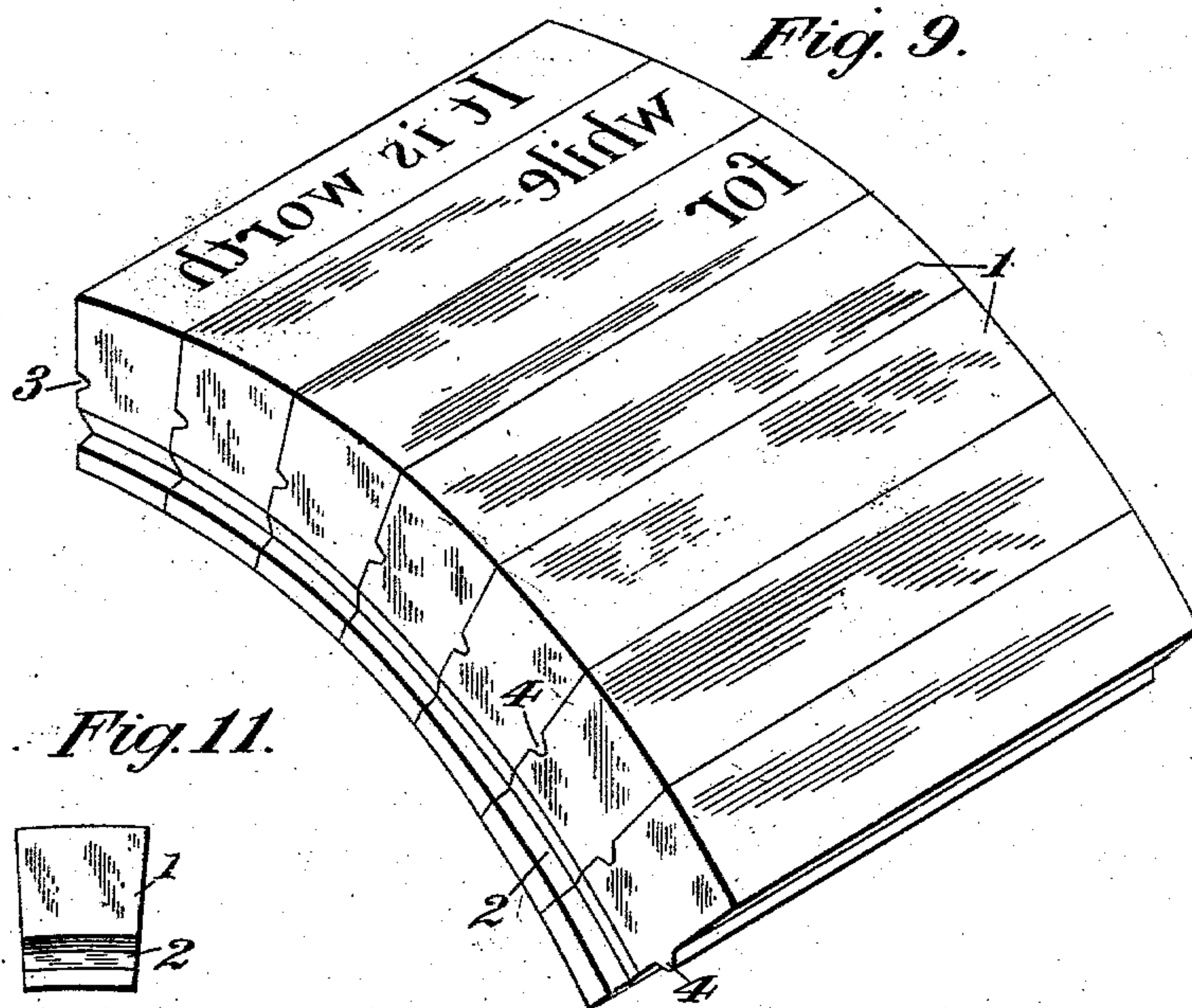
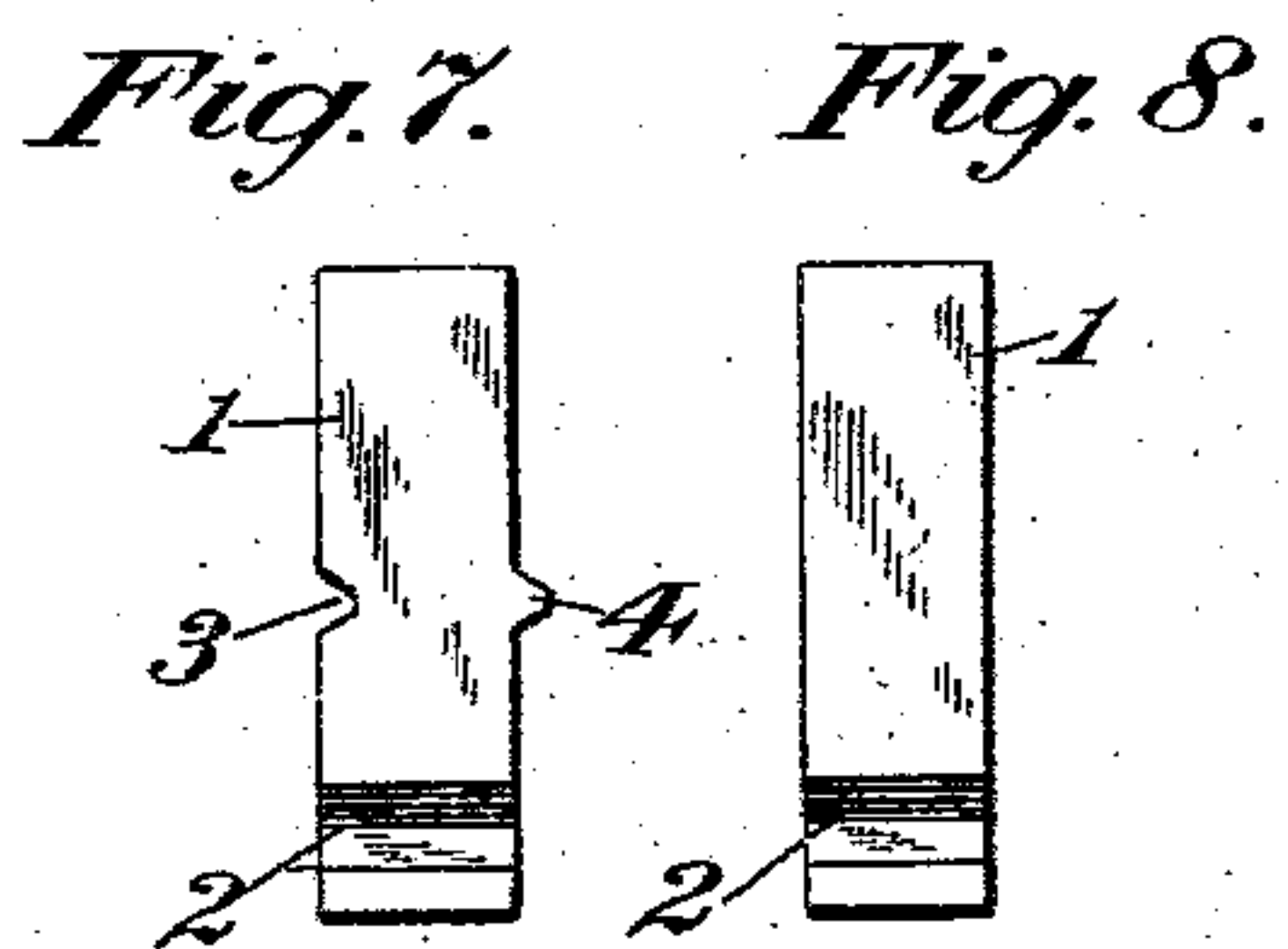
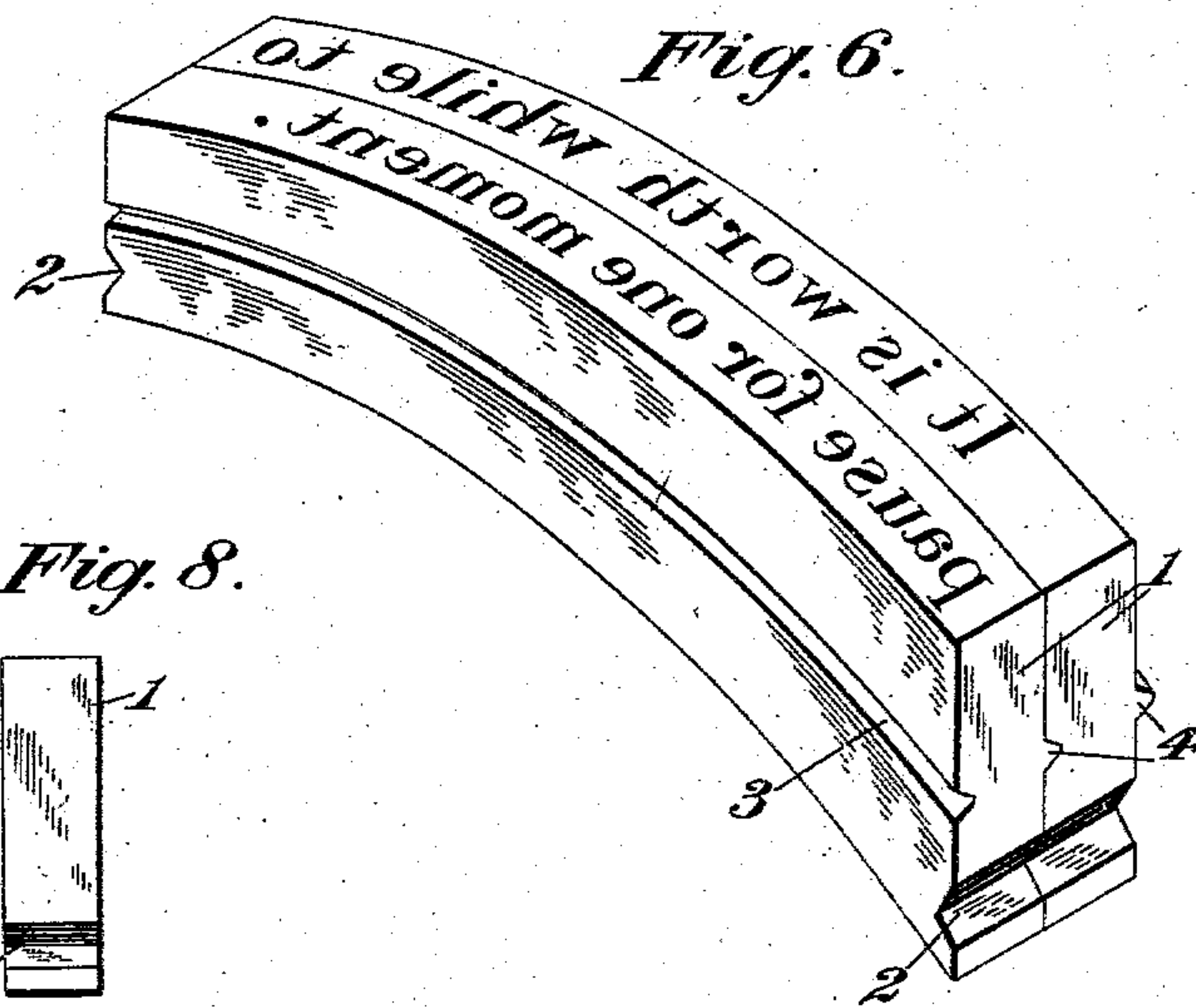
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NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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ART OF PLANOGRAPHIC PRINTING.

SPECIFICATION forming part of Letters Patent No. 753,368, dated March 1, 1904.

Application filed November 11, 1902. Serial No. 130,927. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. CORNWALL, a citizen of the United States, residing at Rye, in the county of Westchester and State of New York, have invented certain new and useful Improvements in the Art of Planographic Printing, of which the following is a specification.

My invention relates to the art of planographic printing, and has for its object to provide a planographic printing-surface upon which corrections, substitutions, transpositions, insertions, or alterations may readily be made.

In the accompanying drawings I have illustrated the means I employ for carrying out my invention.

In said drawings, Figure 1 represents a perspective view of a planographic printing-surface constructed according to my invention. Fig. 2 shows an element of said surface. Fig. 3 is a broken view showing an improved form of the element shown in Fig. 2. Fig. 4 is an end view of the element shown in Fig. 3. Fig. 5 is an end view of a similar element, showing modifications. Fig. 6 represents my improved planographic surface adapted to a cylinder-press. Figs. 7 and 8 show end views of different forms of the elements constituting the surface shown in Fig. 6. Fig. 9 is a view of my planographic surface for application to a cylinder-press, in which the elements are arranged differently from the arrangement shown in Fig. 6. Fig. 10 is an end view of the element constituting the surface shown in Fig. 9, and Fig. 11 is a modified form of said element.

In planographic printing it has heretofore been impracticable to make corrections, alterations, transpositions, or insertions after the characters or design or impression have been put upon the planographic surface. For this reason planographic printing has not been employed where changes, transpositions, insertions, &c., are required to be made as in ordinary typographic composition, and for this reason the more expensive and cumber-

some relief-type, type-bodies, or type-bars have been employed.

My invention enables the employment of planographic surfaces in all circumstances and conditions under which relief type-bodies are at present used.

By my invention, changes, corrections, transpositions, insertions, &c., may as readily and quickly be made as with the relief type-body method of printing. When a composition has been imposed upon a planographic surface, my invention enables corrections, deletions, transpositions, and insertions to be made with great facility and readiness. The matter to be deleted, transposed, substituted, or inserted may consist of individual lines or a series of lines.

My invention is accomplished by making a planographic printing-surface of a series of individual elements massed together to form a uniform printing-surface.

In Fig. 1 is represented a portion of a surface of the construction described, comprised of three elements 1, each of which bears a portion of the typographic design or composition. A surface of any desired extent is built up of a sufficient number of elements which are massed together and securely held so as to form a uniform planographic surface from which impressions may be taken. In the form of invention illustrated in the drawings I have shown a planographic surface made up of a series of elements in the form of strips or bars, each element constituting a portion of the planographic surface and bearing one line of the composition. From the surface so constituted impressions may be taken and proof read, and any corrections, transpositions, substitutions, insertions, &c., required may be made by withdrawing from the surface the bar or strip containing the matter to be corrected, inserting or substituting the desired matter by transposing the line strips or bars in the desired order. Insertions may be made by printing upon other bars or strips the matter to be inserted and adding them in their proper position in the surface to the bars or

strips containing the remainder of the composition. The bars or strips are securely held in a suitable form and as many impressions as desired taken therefrom.

5 Various means are provided for insuring the proper registry of the bars or strips one with the other to obtain a uniform planographic surface. Such means may consist, as shown, of end notches 2 or side grooves and
10 ribs 3 and 4 on each bar or strip, or each bar or strip may be provided with both the end notch and the side groove and rib. The side ribs register with the side groove of the adjacent bars, and the notches 2 are adapted to
15 register with and be held by a suitable retaining-rib on the form.

Ordinary clamping means are provided to clamp the elements in the form, where by reason of their interlocking ribs, grooves, and
20 notches they are securely held from movement.

My invention is not confined in its use to flat planographic surfaces, but may be employed in connection with cylindrical or curved surfaces, as where it is desired to use the same
25 in a cylinder-press. Fig. 6 illustrates one form of the bars for use when a curved cylindrical printing-surface is desired. In this form the bars run circumferentially on the cylinder and are curved in the direction of
30 their length, each bar containing a line of composition or typographic design, as shown. Corrections or insertions are made in the same manner as with the flat surface above described. The individual bars or strips are
35 provided with similar interlocking notches 2, ribs 4, and grooves 3, as those employed for flat surfaces. (See Figs. 7 and 8.)

In Fig. 9 a cylindrical surface is shown built up of bars which run longitudinally of the cylindrical surface. The bars in this construction are not curved in the direction of their length, as is the case with the construction shown in Fig. 6, but are in form of sector-bars, having their outer arcs conforming to the cylindrical printing-surface and their lesser arcs conforming to the cylinder frame or support. Similar notches 2, grooves 3, and ribs 4 are provided, as shown in Figs. 10 and 11, to retain the elements in position, as in the former
50 cases.

By the above-described devices I have provided in connection with the art of planographic printing a ready means for making all required changes, transpositions, corrections, insertions, &c., in typographic composition with as great facility and rapidity as the same are made when the printing or impression surface is constituted of relief or type bodies.

60 My invention is adapted for use in connection with automatic typographic or printing apparatus in which the apparatus is controlled by a perforated tape or ribbon and the characters are printed successively upon the impression-receiving material.

The matter printed by the machines described above is received on transfer-sheets, from which the impressions are transferred to the planographic surface, the lines of the impression are spaced apart the requisite distance to bring each line on a separate bar or strip, the bars or strips being of the requisite width to receive such line-impressions, or the transfer-sheet may after having received the impression be cut into strips, so that a single
70 strip may contain a line of impressions, which may then be transferred to a single bar. The impressions or matter made upon the transfer-sheets will consist of both justified and unjustified lines, the latter being the lines of less
75 than full length, and each of the justified and unjustified lines will be received upon a separate bar.

The planographic surface may be any surface possessing the ink-receiving and ink-injecting properties required for planographic work. I preferably employ an aluminium or zinc surface; but any suitable surface possessing the requisite properties may be employed without departing from the spirit and scope
80 of my invention. The bars may be made wholly of the material constituting the planographic surface or may be faced with said material and backed with other and cheaper material—such as iron, for instance.

The term "typographic" as used in the specification and claims signifies of or pertaining to the art of printing and is not to be restricted in its meaning to type, relief-type, or relief-type bodies or bars.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A planographic printing-surface divisible into line members or elements.
2. A planographic printing-surface composed of a series of individual elements or members assembled to form a uniform surface, each element or member bearing a line or a portion of a line of typographic composition.
3. An element of a planographic printing-surface consisting of a strip or bar having a planographic printing-surface and bearing thereon a line or a portion of a line of typographic composition.
4. A planographic printing-surface having thereon a typographic composition, said surface being divisible into units or members each bearing a line or part of a line of composition, said line members being capable of rearrangement, transposition, substitution or removal, for the purpose of correcting, modifying or changing the composition, substantially as described.
5. A planographic printing-surface having thereon a typographic composition, said surface constituted of a plurality of units or members assembled to form a uniform planographic surface, individual units of which bear a line or part of a line of the composition, said units

capable of being disassembled, rearranged, transposed, and substituted by other similar units and reassembled into a uniform planographic surface, for the purposes described.

5 6. A form for planographic printing, the same consisting of a plurality of planographic printing-surfaces, each having imposed thereon an independent design representing a single line of typographic characters, substantially as set forth.

10 7. A planographic printing-surface comprising a series of strips or bars held together to form a uniform continuous planographic surface, each strip or bar bearing one line of typographic impressions.

15 8. A form for planographic printing, consisting of a series of planographic line-bars, each carrying a typographic design, substantially as set forth.

20 9. A unit of composition for planographic printing, a planographic strip or bar containing a line of typographic design or designs, substantially as set forth.

25 10. A planographic printing-surface consisting of a single bar or strip carrying a line of justified typographic characters, as set forth.

30 11. A planographic printing-form consisting of a plurality of bars or strips, each carrying a justified line of typographic characters, as set forth.

35 12. A planographic printing-surface consisting of a bar or strip carrying a line of justified typographic characters and a bar or strip carrying a line of unjustified typographic characters.

40 13. A planographic printing-form consisting of a plurality of bars or strips, each carrying a justified line of typographic characters, and a plurality of bars or strips carrying lines of unjustified typographic characters, the whole constituting a uniform planographic surface.

45 14. The herein-described improvement in the art of planographic printing, a form composed of a series of planographic line bars or strips carrying typographic characters and provided with grooves and ribs arranged to

interlock when the form is made up, substantially as set forth.

50 15. A form for planographic printing consisting of a series of parts adapted to have imposed thereon a typographic composition, in a manner to affix the printing-surface to each part by processes at once operating upon all or a plurality of the several parts composing the form, substantially as set forth.

60 16. As an improvement in the art of planographic printing, a planographic line-bar carrying a typographic design, said bar being provided with a groove upon one side and a rib registering with said groove upon the opposite side, substantially as set forth.

65 17. As an improvement in the art of planographic printing, a planographic line-bar carrying a typographic design, and provided with a notch upon one side and a registering rib upon the opposite side, and having the ends notched for the purpose herein described.

70 18. As an improvement in planographic printing-forms, a series of planographic bars, the outer arc of which conforms to the curvature of the form to be printed from, and the lesser arc to that of the bed or support, and each bar carrying a line of typographic characters, substantially as set forth.

80 19. As an improvement in the art of planographic printing, a form composed of a series of planographic sector-bars, each containing a typographic design, the outer arc of said bars conforming to the circle of the printing-form, and the lesser arc to the support or bed, substantially as set forth.

85 20. As an improvement in planographic printing, a planographic line-bar, the cross-section of which forms the section of a cylinder, the outer arc conforming to the curvature of the form to be printed from, and the lesser arc to that of the bed or support, said bar having a design of typographic matter imposed upon its outer surface, substantially as set forth.

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