

(No Model.)

M. JOYCE.

METHOD OF PRODUCING PRINTING SURFACES.

No. 333,129.

Patented Dec. 29, 1885.

Fig. 1.

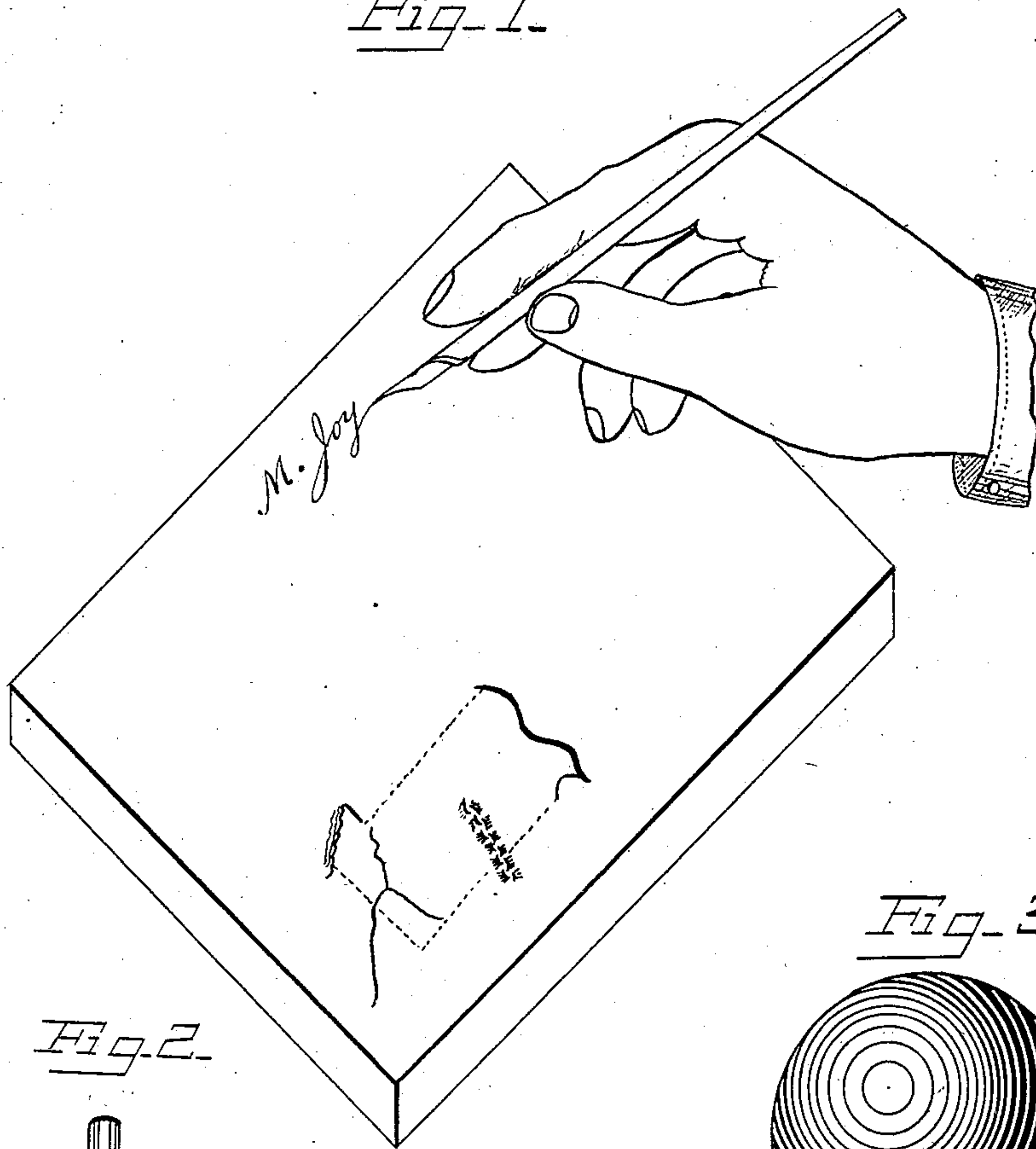


Fig. 2.



Fig. 4.

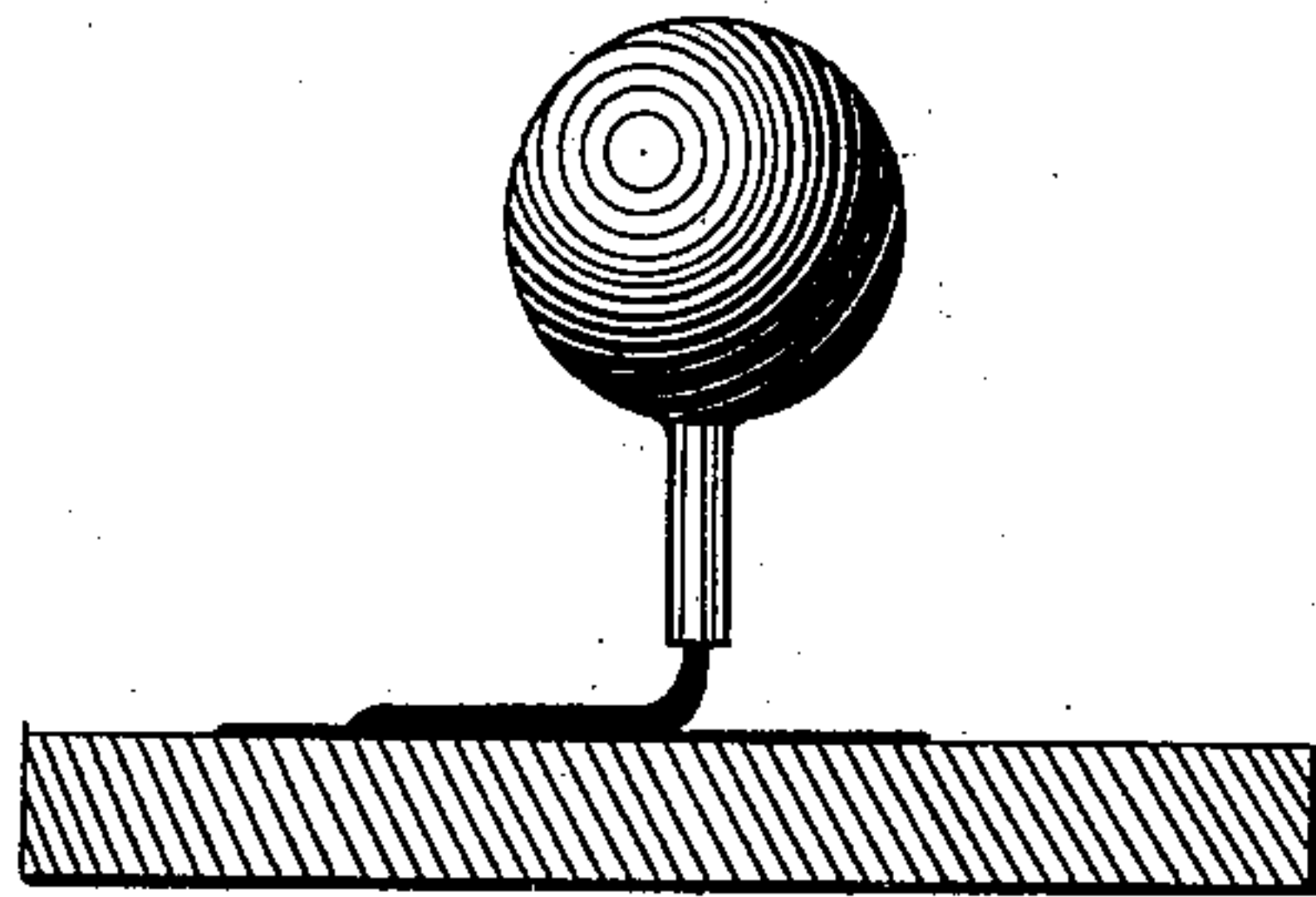
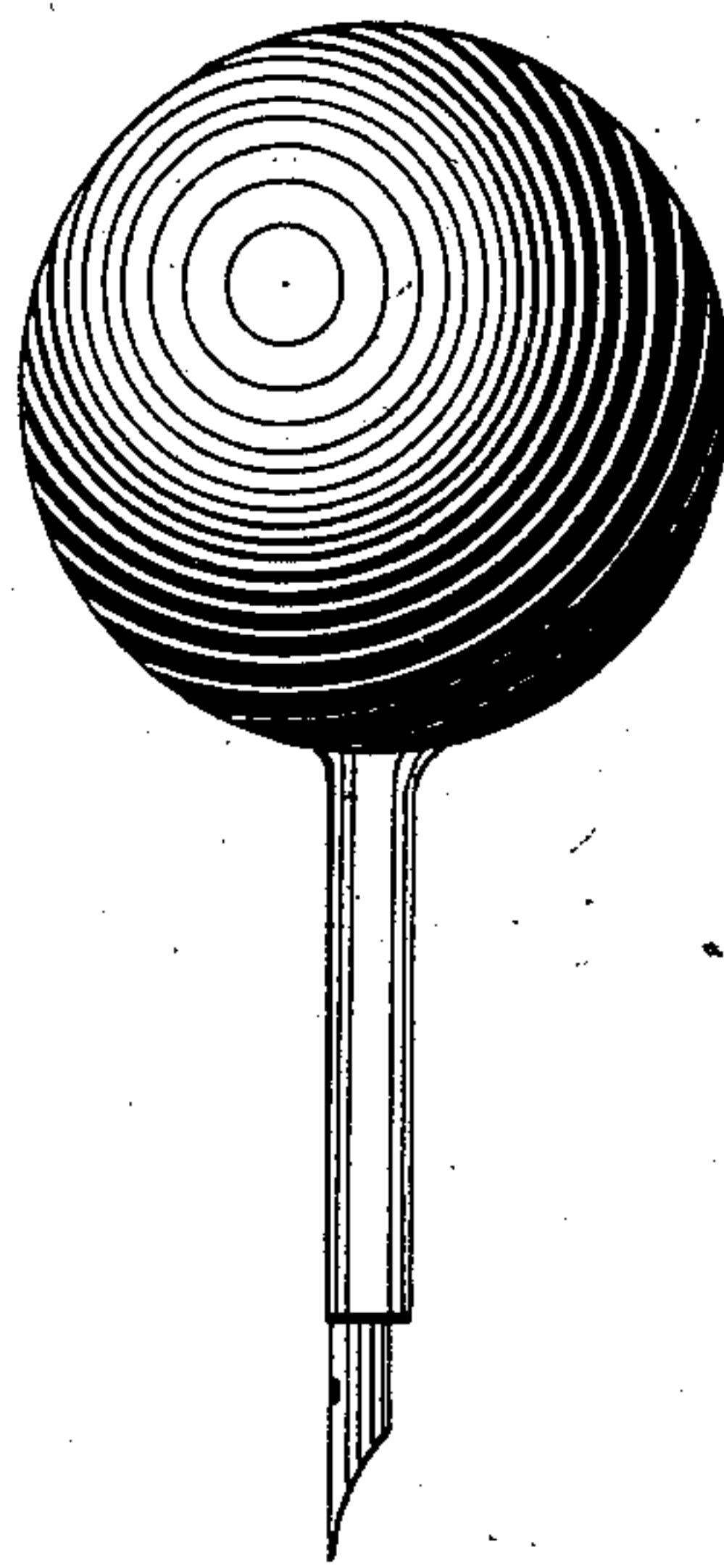


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

MAURICE JOYCE, OF WASHINGTON, DISTRICT OF COLUMBIA.

METHOD OF PRODUCING PRINTING-SURFACES.

SPECIFICATION forming part of Letters Patent No. 333,129, dated December 29, 1885.

Application filed October 30, 1883. Serial No. 110,392. (No model.)

To all whom it may concern:

Be it known that I, MAURICE JOYCE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Methods of Producing Printing-Surfaces, of which the following is a specification, reference being had therein to the accompanying drawing.

10 My invention relates to the art of making or producing printing-surfaces; and it consists in certain steps in the process by which such surfaces are made, as hereinafter pointed out and claimed.

15 The object of my invention is to produce, in an economical way, printing-surfaces in which the letters or designs are sunk below the general level of the plate, whereby in printing with black ink on white paper the letters
20 or designs will appear in white on a dark or black ground.

To carry out my method, I proceed as follows: I take a plate of iron or other metal with a smooth and preferably a polished surface. On this plate I write with a pen, or
25 portray with a brush or similar instrument, such design, words, letters, or characters as I desire to reproduce. Instead of using ink, however, I write or paint or draw with a composition which is refractory to heat. Such a
30 composition may be made of potter's clay, such as is used in stereotyping, mixed with water. Preferably a little plaster-of-paris is added to the clay, and generally a little gum-arabic. The compound is made of about the
35 consistency of cream, or thicker or thinner, according as the lines to be produced are coarse or fine. For fine lines the composition should be thin, as such a solution flows readily from a
40 pen. Other materials than clay and plaster may be used to make the liquid solution so that they be refractory in character. In writing or drawing on the metallic plate, if fine lines only are desired, the lines may be written or drawn
45 with a pen with a thin fluid solution. If broad lines are desired, a first coating may be applied with pen or brush. As soon as the first coating is partially dry, the heavy lines may be gone over with a second coating, which
50 may be much thicker. The second coating will build up the lines to a considerable height,

but will not overflow the edges of the first coating, if applied with reasonable care, the tendency of the fluid being to build up in the center rather than overflow at the edges, as
55 water will gather in globules on a smooth surface, rather than spread out in a film. As many coatings may be applied to the lines as found desirable, the relief required depending, in great measure, on the width of the lines. 60
When all the lines have been built up to the height found desirable, the metal plate with the design thus drawn, written, painted, or built up upon it is heated, so that the composition may be thoroughly dry. When hot
65 enough, the plate is ready for the operation of casting a printing-plate therefrom. The casting is done, in the manner usual in the stereotyper's art, by securing a second metallic plate in position parallel with the face of the plate
70 containing the design and at a little distance therefrom, and pouring hot type-metal between the two plates. When the cast plate is removed from the mold, a printing-surface will be found thereon having the lines depressed, and the body of the plate smooth and
75 flat. The depth of the lines will be determined by the thickness of the lines or bodies of composition on the original plate. The "stereotype-plate," if it may be so called, is
80 now mounted, and is ready for printing by rolling and impressing in the usual manner on a typographic press. Thus printed, the lines will be uncolored, while the general surface of the block will give "color." Where fine
85 sharp lines are produced in the plate, however, I may print from the plate after the manner of a steel or copper plate print by wiping off the ink from the plane surface of the plate and leaving it only in the sunken lines. 90

I have described a method of producing a smooth printing-plate which will give a flat tint only, leaving the design white. A stippled effect may be produced on the tint-block in several ways. One way is by using a rough-
95 ened or stippled metallic plate, instead of a smooth one, on which to paint or write the design with the refractory compound. Another is, after the design is written or built up on a smooth plate, to coat the surface of the plate
100 surrounding the design or the entire plate with a thin solution of gum, and then sift on

sand. The plate cast on this sanded surface will have a roughened or stippled appearance. Parts only of the plate may be thus covered with the sand or similar material to produce the stippled appearance. Preferably the sand which gives the "stipple" effect should not come too near the built-up design, as an appearance of roughness of lines may be produced if the sand comes too near.

In the drawings, Figure 1 is a perspective view representing an iron plate and the manner of applying the refractory composition thereto with a pen. Fig. 2 shows an ordinary marking-brush with which the compound may be applied to the plate. Fig. 3 shows a pen-holder with an elastic bulb capable of use like a fountain-pen. The pen may be replaced by a brush or marking-pen. Fig. 4 shows a section of the plate with a device like a syringe in position to build up the lines into higher relief.

The character of the design produced will depend largely on the skill of the artist or delineator in applying or building up the lines on the metal plate. For ordinary manuscript no special skill is required. A person can write on the smooth metal plate with about the same facility as on paper. I can dry such a plate, take a casting therefrom, and get the plate ready for printing in a very few minutes. I have produced printed copies of manuscript written in this way in less than twenty minutes from the time of writing. After I have prepared my plate, with the fluid or semi-fluid composition thereon built up into lines to form the design, I may varnish the surface with some varnish or oil, which is water-repellent, and after coating the whole with black-lead may take an electroplate therefrom. The stereotype or type-metal plate I prefer, however, as it can be produced more quickly and cheaply.

Portions of my plate may be "routed" after casting, as in other stereotype-plates, to cut away "blacks" or enlarge or deepen the "whites."

I am aware that plates somewhat similar to mine have been made by drawing or writing

with gum or gum-water on paper, and then sifting a refractory composition thereon, on which surface a metal printing-plate was cast or a soft metal impressed. This does not give as sharp lines as mine, the granular character of the composition appearing in the plate by a roughness of outline.

I am aware that it is not new to build up on a matrix or mold from which a stereotype or electrotype is to be taken, either with wax or with refractory composition, to enlarge or deepen the whites; but this, so far as I am aware, is when the printing-surface, generally relief, has been impressed or cut into the matrix.

I am not aware that a relief-surface has ever before been entirely built up of a fluid refractory composition on a metallic plate with intent to produce a printing-surface from the reverse thereof.

I claim—

1. The method hereinbefore described of producing printing-surfaces by marking with a refractory fluid substance on a metallic surface and then casting a printing-plate thereon.

2. The method hereinbefore described of producing printing-surfaces by marking with a refractory fluid on a metallic surface, then adding to the lines or marks a further thickness of the refractory substance, and then casting a printing-plate thereon.

3. The method hereinbefore described of producing printing-surfaces, which consists in drawing or marking the design with a refractory fluid on a metallic surface, then coating parts of the plate not covered with the design with an adhesive material, then sifting sand or similar material upon this gummed surface, then drying the matrix and taking a casting therefrom, whereby the plate so cast has a stippled appearance in such parts as are not covered by the design, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MAURICE JOYCE.

Witnesses:

W. A. BARTLETT,
GEO. C. FLETT.