

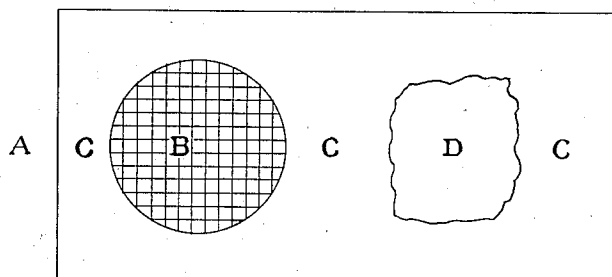
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LITHOGRAPHIC PRINTING FORM AND THE METHOD OF MAKING THE SAME.

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927,577.

Patented July 13, 1909.



WITNESSES:

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LITHOGRAPHIC-PRINTING FORM AND THE METHOD OF MAKING THE SAME.

No. 927,577.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE G. MURRAY, a citizen of the United States, and a resident of Larchmont, in the county of Westchester, State of New York, have invented certain new and useful Improvements in Lithographic-Printing Forms and the Methods of Making the Same, of which the following is a specification.

The invention relates to lithographic printing and has especial reference to the character or construction of the printing form or device to be used in such lithographic printing and it consists of the improved printing form herein described and claimed, and of the described and claimed method of making the said printing form.

The invention has especial reference to the character and construction of that part of the printing form by means of which the ink and water-carrying functions of the structure are carried out, to wit, the ink and water carrying surfaces of the said printing form.

One of the most important characteristics of a lithographic printing surface is what may be termed its granular structure, by means of which is secured to a greater or less degree the peculiar porosity essential to such a surface. Where this granular structure is not originally possessed by the material of the printing form, mechanical means, such as the sand blast, have been resorted to in order to secure the proper granular surface, and electrolytical deposition has also been employed for securing the proper granular structure.

The materials best adapted for lithographic printing purposes are preferably those which are more or less soft and porous in character and it frequently happens that the surface of such materials becomes worn away and sometimes worn away unevenly by the mechanical friction or chemical changes or both to which the surface may be subjected, especially in the printing operation. And this is true whether the suitable surface is originally possessed by the material employed therefor or has been produced by mechanical means or by electrolytical deposition. The minute spaces formed by and between the particles which go to make up the granular porous surface serve to retain the moisture applied to the water-carrying parts of the printing surface, and as these

particles become worn away the water-carrying capacities of the surface are diminished and other troubles are introduced which result in imperfect or less perfect printing.

A lithographic printing form constructed in accordance with my present invention comprises a porous or granular surface suitable for lithographic printing upon which a design is impressed, the water-carrying parts of which surface have applied to them subsequently to the application of the design and preferably by electrolytical deposition, a suitable protective surface preferably of some suitable hard metal.

The process by which this printing form is produced consists in preparing a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form and subsequently applying a protective coating or layer to the remaining parts of the surface to constitute the water-carrying parts of the form. In this process the application of the water-carrying surface will not take place over the design or ink-carrying parts of the form but will take place only on what are to be the water-carrying parts of the form and thereby these latter parts will be protected or fortified against wear by the thin coating and will at the same time retain and as a final result retain much longer their water-carrying characteristics. By this means the useful life and utility of the printing form as a whole will be increased. The printing form may be of any desired shape or size.

In carrying out my invention a printing form is employed consisting of a base or support of suitable material say of brass and having a porous or grained surface suitable for lithographic printing, say of copper or zinc or brass and preferably of copper, a surface attained preferably by electrolytical deposition as the best character of grain or porosity is obtained in this way. To this surface the design to be reproduced in the printing is transferred or applied in any suitable manner. Then a surface coating, preferably of some suitably hard metal, as say of nickel, is applied, and preferably by electrolytical deposition, to the uncovered or remaining, that is to say, the water-carrying parts of the surface. In this operation the applied design protects the parts of the surface upon which it lies from receiving this

additional coating, thereby confining the latter to the water-carrying parts of the surface. Of course the basic surface may be of any suitable material and in any surface condition which shall be suitable to receive a lithographic transfer or impression, but I prefer that said basic surface shall be of metal. The result is the new printing form which is the subject of my invention.

10 The accompanying drawing, which forms a part hereof, illustrates the printing form of my invention.

A represents a flat printing form consisting of a base or support having a uniform
15 basic surface of say electrolytically deposited metal to which the design B consisting of a disk with net work ornamentation has been applied.

C C C show, outside of the disk design B, the water-carrying parts upon which an electrolytic deposition, say of nickel for example, has been made subsequently to the application of the disk design B to the basic surface of the form A.

25 At D the basic surface of A appears through the outer surface C C C, which is broken away for that purpose.

What I claim and desire to secure by Letters Patent is -

30 1. A lithographic printing form, consisting of a porous or grained surface carrying a design and forming the ink-carrying parts of the form, and a separate protective layer or coating electrolytically deposited on said
35 porous surface and forming the water-carrying parts of the form.

2. A lithographic printing form, consisting of a porous or grained metallic surface carrying a design and forming the ink-carrying parts of the form and a separate
40 protective layer or coating applied to said porous surface and forming the water-carrying parts of the form, said protective layer or coating being formed of a different metal from that of which the porous surface is
45 formed.

3. A lithographic printing form, consisting of a porous or grained metallic surface carrying a design and forming the ink-carrying parts of the form and a separate
50 protective layer or coating applied to said porous surface and forming the water-carrying parts of the form, said protective layer or coating being formed of a harder metal than that of which the porous surface is formed.

4. A lithographic printing form, consisting of a porous or grain copper surface carrying a design and forming the ink-carrying
60 parts of the form, and a separate protective layer or coating of nickel applied to said porous surface and forming the water-carrying parts of the form.

65 5. A lithographic printing form, consisting of a porous or grained surface carrying

a design and forming the ink-carrying parts of the form, and a separate protective layer or coating of metal electrolytically deposited on said porous surface and forming the water carrying parts of the form.

70 6. A lithographic printing form consisting of a porous or grained metallic surface carrying a design and forming the ink-carrying parts of the form, and a separate protective layer or coating of nickel electrolytically deposited on said porous surface
75 and forming the water-carrying parts of the form.

7. A lithographic printing form, consisting of an electrolytically deposited porous
80 or grained surface, carrying a design, and forming the ink-carrying parts of the form, and a separate protective layer or coating applied to said porous surface and forming the water-carrying parts of the form.

8. A lithographic printing form, consisting of an electrolytically deposited porous or grained surface carrying a design and forming the ink-carrying parts of the form, and a separate protective layer or coating
90 electrolytically deposited on said porous surface and forming the water-carrying parts of the form.

9. A lithographic printing form, consisting of an electrolytically deposited porous
95 or grained metallic surface carrying a design and forming the ink-carrying parts of the form, and a separate protective layer or coating applied to said porous surface and forming the water-carrying parts of the form, said protective layer or coating being
100 formed of a metal which is harder than the metal of which the porous surface is formed.

10. A lithographic printing form, consisting of an electrolytically deposited porous
105 or grained metallic surface carrying a design and forming the ink-carrying parts of the form, and a separate protective layer or coating of metal electrolytically deposited on said porous surface and forming the water-carrying parts of the form.

11. A lithographic printing form, consisting of an electrolytically deposited porous or grained copper surface carrying a design
115 and forming the ink-carrying parts of the form, and a separate protective layer or coating of nickel electrolytically deposited on the said porous surface and forming the water-carrying parts of the form.

12. A lithographic printing form, consisting of a base of suitable hard metal, a porous or grained layer of copper electrolytically deposited on said base, said porous or grained surface carrying a design and forming the ink-carrying parts of the form,
125 and a separate protective layer or coating of metal electrolytically deposited on the said porous surface and forming the water-carrying parts of the form.

13. A lithographic printing form, consist- 130

ing of a base of brass, a porous or grained layer of copper electrolytically deposited on said base, said porous or grained layer carrying a design and forming the ink-carrying parts of the form, and a separate protective layer or coating of nickel electrolytically deposited on said porous or grained layer and forming the water-carrying parts of the form.

14. The process of making lithographic printing forms which consists in preparing a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently applying a protective coating or layer to the remaining parts of the surfaces to constitute the water-carrying parts of the form.

15. The process of making lithographic printing forms which consists in preparing a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently applying a protective coating or layer to the remaining parts of the surface without decomposing the material of which the surface is composed, said protective coating or layer constituting the water-carrying parts of the form.

16. The process of making lithographic printing forms which consists in preparing a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently electrolytically depositing a protective coating or layer on the remaining parts of the surface to constitute the water-carrying parts of the form.

17. The process of making lithographic printing forms which consists in preparing a porous or granular basic surface of a suitable metal, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently applying a protective coating or layer of a different metal to the remaining parts of the surface to constitute the water-carrying parts of the form.

18. The process of making lithographic printing forms which consists in preparing a porous or granular basic surface of a suitable metal, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently applying a protective coating or layer of a harder metal to the remaining parts of the surface to constitute the water-carrying parts of the form.

19. The process of making lithographic printing forms which consists in electrolytically depositing a layer of suitable metal to form a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently applying a protective coating or layer to the remaining parts of the surface to constitute the water-carrying parts of the form.

20. The process of making lithographic printing forms which consists in electrolytically depositing a layer of suitable metal to form a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently applying a protective coating or layer to the remaining parts of the surface without decomposing the metal of which the surface is composed, said protective coating or layer constituting the water-carrying parts of the form.

21. The process of making lithographic printing forms which consists in electrolytically depositing a layer of suitable metal to form a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently electrolytically depositing a protective coating or layer on the remaining parts of the surface to constitute the water-carrying parts of the form.

22. The process of making lithographic printing forms which consists in electrolytically depositing a layer of suitable metal to form a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently electrolytically depositing a protective coating or layer of metal to the remaining parts of the surface to constitute the water-carrying parts of the form.

23. The process of making lithographic printing forms which consists in electrolytically depositing a layer of suitable metal to form a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently electrolytically depositing a protective coating or layer of a harder metal to the remaining parts of the surface to constitute the water-carrying parts of the form.

24. The process of making lithographic printing forms which consists in electrolytically depositing a layer of copper to form a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently applying a protective coating or layer to the remaining parts of the surface to constitute the water-carrying parts of the form.

25. The process of making lithographic printing forms which consists in electrolytically depositing a layer of copper to form a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subsequently applying a protective coating or layer of nickel to the remaining parts of the surface to constitute the water-carrying parts of the form.

26. The process of making lithographic printing forms which consists in electrolytically depositing a layer of copper to form a porous or granular basic surface, applying

a design to said surface to constitute the ink-carrying parts of the form, and subsequently electrolytically depositing a protective coating or layer on the remaining parts of the surface to constitute the water-carrying parts of the form.

27. The process of making lithographic printing forms which consists in electrolytically depositing a layer of copper to form a porous or granular basic surface, applying a design to said surface to constitute the ink-carrying parts of the form, and subse-

quently electrolytically depositing a protective coating or layer of nickel to the remaining parts of the surface to constitute the water-carrying parts of the form.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

GEO. G. MURRAY.

Witnesses:

GEO. H. BARNES,
JACOB MILLER.