A. R. WARREN.

PROCESS OF MAKING ELECTROPLATES.

APPLICATION FILED SEPT. 8, 1914.

1,171,819.

Patented Feb. 15, 1916.

3 SHEETS—SHEET 1.

Fig. 1

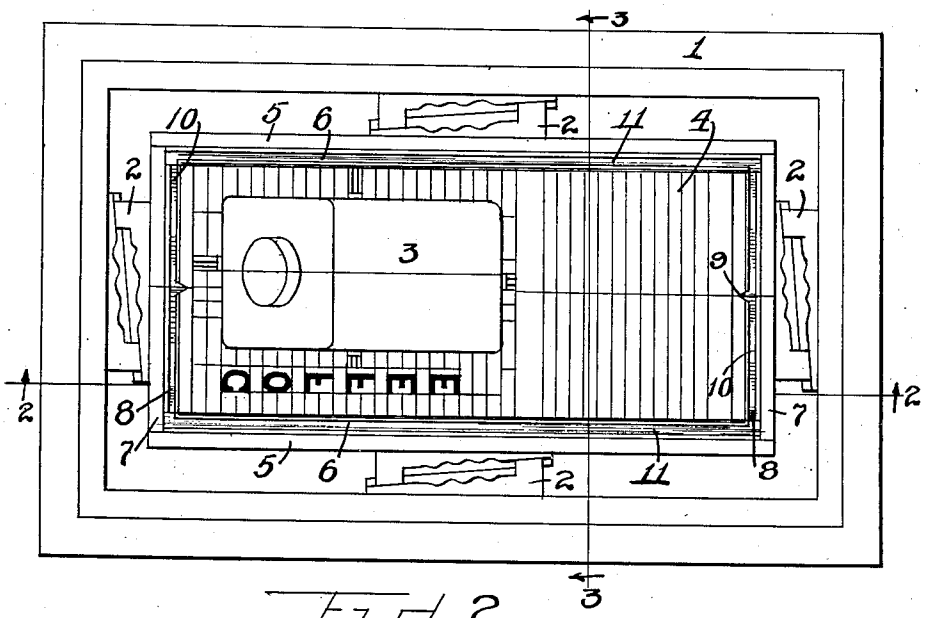


Fig. 2

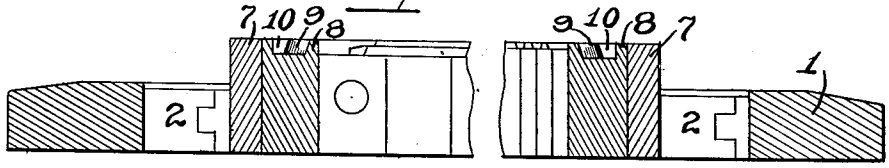


Fig. 3

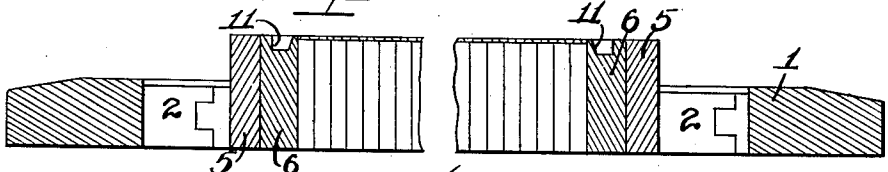
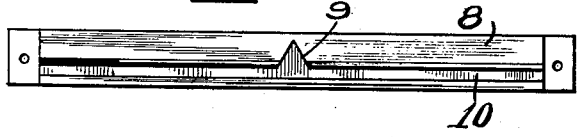


Fig. 4



Witnesses

J. W. Angell

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3 SHEETS—SHEET 2.

Fig. 5

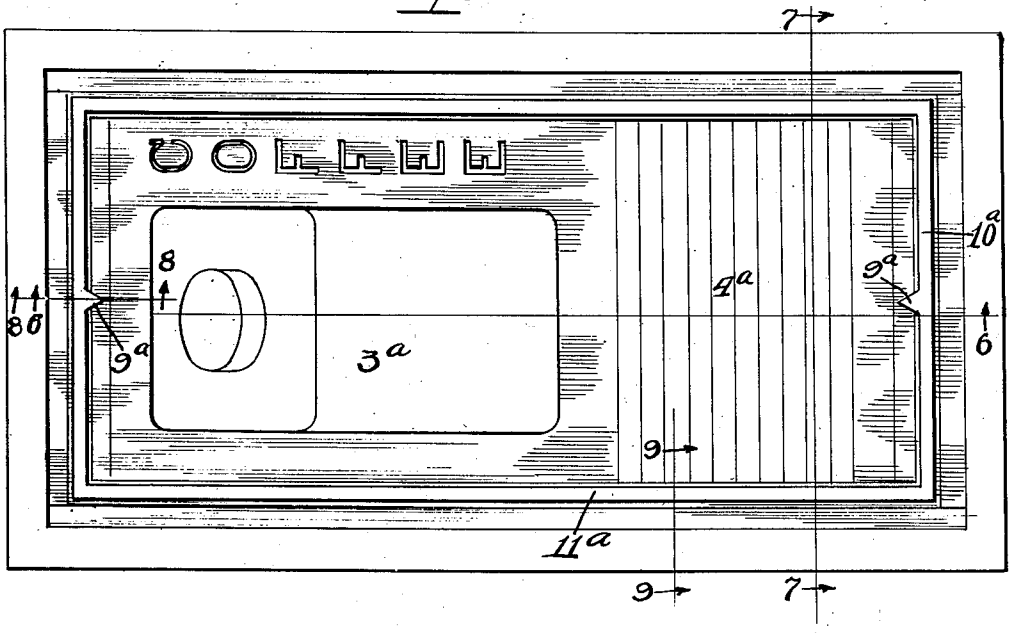


Fig. 6

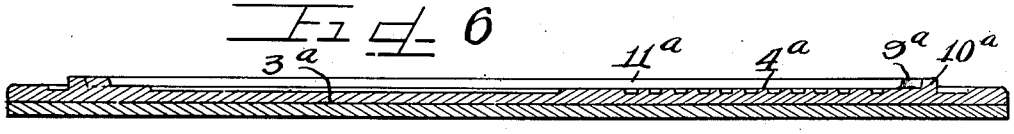


Fig. 7

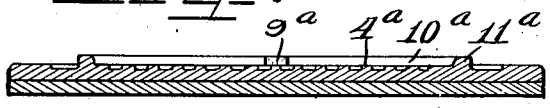


Fig. 8

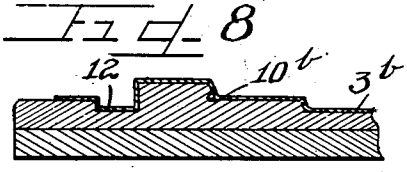
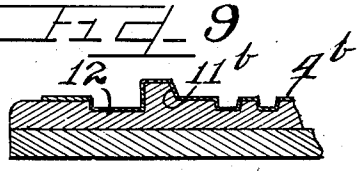


Fig. 9



Witnesses

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3 SHEETS—SHEET 3.

Fig. 10

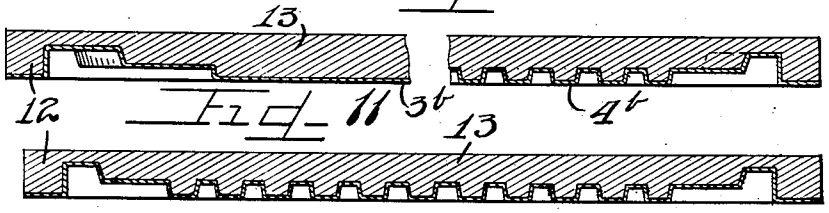


Fig. 11

Fig. 12

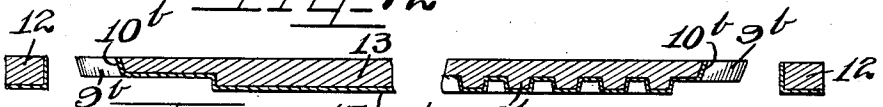
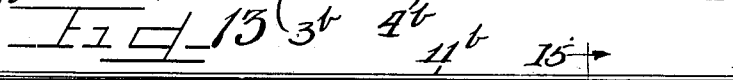


Fig. 13



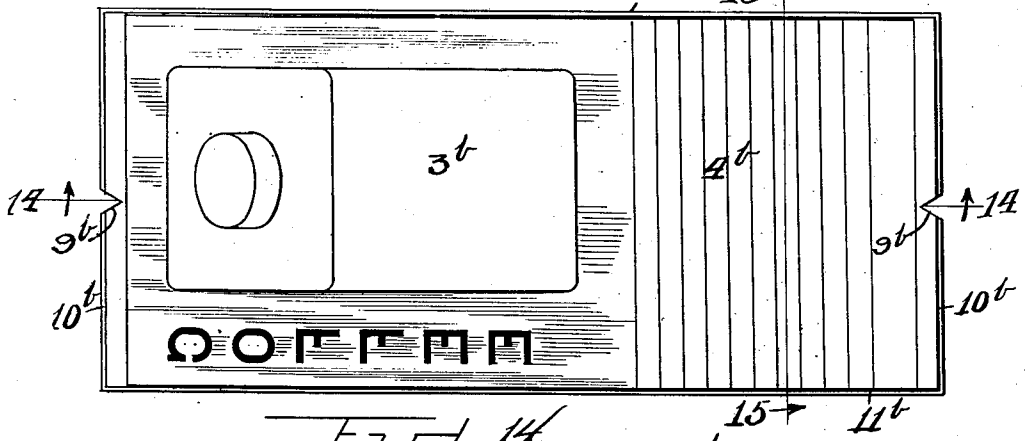


Fig. 14

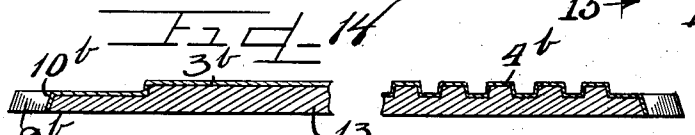


Fig. 15

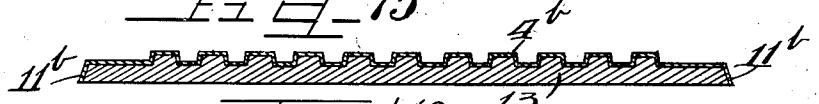
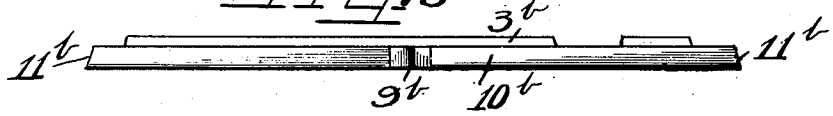


Fig. 16



Witnesses

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UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING ELECTROPLATES.

1,171,819. Specification of Letters Patent. Patented Feb. 15, 1916.

Application filed September 8, 1914. Serial No. 860,602.

To all whom it may concern:

Be it known that I, ARTHUR R. WARREN, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Processes of Making Electroplates; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to a method of manufacture of electroplates for printing purposes which not only insures the construction of a plate of greater durability than heretofore, but also provides for the formation of centering or registering notches in the edge of the plate which, together with the entire edge of the electroplate, are coppered over integral with the copper bearing surface of the plate.

Electroplates as heretofore constructed have been more or less susceptible to damage, especially on the edges, owing to the fact that the soft metal backing is unprotected at the edge of the plate. However, in the present construction this objection is obviated, due to the method of formation of the plate, which provides for beveling and coppering of the edges of the finished electrotype plate so that a plate with a relatively impervious or protected edge is thus afforded.

I achieve the aforementioned beneficial results by constructing a form for the matrix from which the electrotype is made, in a peculiar and novel manner, so that the plate as initially formed is provided with a false edge, which is subsequently cut away when the lead backing is planed down to the proper thickness, thus leaving a true coppered beveled edge on the finished electroplate. My process is equally well adapted for the formation of either flat or curved electrotypes, the latter of which are used in rotary presses.

It is an object, therefore, of this invention to construct an electroplate by an improved process whereby the plate is provided with a beveled coppered edge having centering notches therein.

It is also an object of this invention to provide mechanisms for association in a form from which an electrotype is made, whereby the plate, when completed, is provided with a beveled coppered edge and centering notches, the walls of said notches being also of copper and integral with the copper covering on said beveled edges.

It is furthermore an important object of this invention to provide means and a process for forming electroplates whereby an electroplate with a false margin is first formed which, after removal of said false margin, leaves a finished electrotype plate having a smooth beveled and coppered edge.

It is finally an important object of this invention to provide an improved means for forming electroplates requiring no departure from the general method now used other than a slight change in the construction of the form.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

In the drawings: Figure 1 is a top plan view of a form or chase for forming the matrix for an electrotype. Fig. 2 is a fragmentary longitudinal section taken on line 2—2 of Fig. 1. Fig. 3 is a fragmentary transverse section taken on line 3—3 of Fig. 1. Fig. 4 is a top plan view of one of the end bearer members used in the form. Fig. 5 is a top plan view of the wax matrix made from the form shown in Fig. 1. Fig. 6 is a longitudinal central section taken on line 6—6 of Fig. 5. Fig. 7 is a transverse section taken on line 7—7 of Fig. 5. Fig. 8 is a fragmentary detail section taken on line 8—8 of Fig. 5, after the matrix has been coppered. Fig. 9 is a fragmentary detail section taken on line 9—9 of Fig. 5, after the matrix has been coppered. Fig. 10 is a fragmentary longitudinal section taken through the electrotype plate after the lead backing has been placed thereon. Fig. 11 is a similar transverse section thereof. Fig. 12 is a fragmentary view showing a central longitudinal section taken through the electrotype plate after the lead backing has been planed down sufficiently to cause the false margin to be detached from the plate. Fig. 13 is a top plan view of the finished electrotype plate. Fig. 14 is a fragmentary section

taken on line 14—14 of Fig. 13. Fig. 15 is a transverse section taken on line 15—15 of Fig. 13. Fig. 16 is an end edge view of the finished electrotype plate.

As shown in the drawings: 1 indicates as a whole a printer's chase of ordinary and usual construction, and held therein by the customary printer's furniture such as quoins 2, is a cut 3, and set up of type 4. Said cut 3, and type 4, are held in position in the chase by means of the quoins 2, due to the interposition of what are termed bearer members, two on each side running longitudinally of the form, and denoted by the reference numerals 5 and 6, respectively, and two at each end, denoted respectively by the reference numerals 7 and 8. Each of the end bearer members 8, is provided with a V-shaped notch 9, which opens into a groove or channel 10, running longitudinally of said member and having one wall thereof inclined. Similarly the longitudinal bearer members 6, are each provided with a groove or channel 11, one wall of which is inclined, said latter groove 11, communicating with the groove 10, of the end bearer members when the form is set up, so that a continuous peripheral channel is thus afforded around the form.

When a form so constructed is used for the production of an electroplate, a wax matrix is first taken of the form, which is shown in plan view in Fig. 5. The impression of the cut upon the matrix is indicated by the reference character 3^a, and that of the type by the reference character 4^a. Similarly the V-shaped recesses 9, of the form cause the formation of V-shaped projections 9^a, on the matrix, and a continuous rib, denoted at the ends of the matrix by the reference numeral 10^a, and at the sides by the reference numeral 11^a, is formed therearound.

After the matrix has been formed the copper plate of the electrotype is made therefrom in the usual manner by dusting the matrix with plumbago and electrolytically depositing the copper thereon. The copper plate so formed from the matrix is an exact reproduction of the form illustrated in Fig. 1, and the various parts thereof are denoted on the copper plate by the reference numerals 3^b, for the impression of the cut 3, 4^b, for the type, and the inner beveled edge is denoted by the reference numerals 10^b and 11^b, respectively. The projections 9^a, on the matrix, cause the formation of similarly shaped recesses 9^b, in the electroplate, and of course the copper walls of said recesses are continuous and integral with the downwardly inclined walls 10^b, of the peripheral recess formed in the copper plate. That portion of the formed plate denoted by the reference numeral 12, is termed the false margin, and is subsequently detached from the plate, thus leaving the inclined walls 10^b and 11^b, to form beveled edges thereon.

After the formation of the copper plate a lead backing shown in Fig. 10, and indicated by the reference numeral 13, is applied thereto in the customary manner in order to reinforce and stiffen the plate. After the plate has been trued up to insure a positive bearing surface of all the copper printing surface the lead backing is planed down until, as shown in Fig. 12, the false margin 12, becomes detached, thus leaving, as pointed out, the finished electrotype plate with beveled edges 10^b and 11^b, respectively.

It is obvious that numerous modifications may be resorted to for the purpose of forming a false margin on the plate with the idea of ultimately obtaining an electrotype plate having a coppered edge, but I have only illustrated a preferred means of securing such a result. I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. In an electroplate form recessed members mounted therein forming a notched continuous channel around said form.

2. In a form for electroplates recessed members mounted therein forming a continuous channel therearound to form an electrotype therefrom with a false margin adapted to be detached leaving a notched electrotype with a coppered edge.

3. In means for forming an electroplate with a beveled coppered edge a plurality of recessed members mounted in a form affording a continuous channel therearound, and other members adjacent thereto adapted to form a false margin on the electrotype plate.

4. The process of forming an electroplate with coppered edges and V-shaped centering elements by molding a positive matrix from a form and electrolytically depositing copper thereon to form a thin negative plate, backing said plate with metal and finally planing the same down to a certain thickness whereby the outer margin of the plate is detached leaving the finished plate with the coppered edge.

5. The process of forming an electroplate from a form by molding a matrix from said form, depositing copper thereon to form a plate, backing the formed copper plate with metal, and finally planing said plate down on its rear surface until the outer margin thereof extending from a continuous channel in said plate becomes detached so that the coppered wall of said channel becomes the coppered edge of the finished plate.

6. A form for making electrotype plates comprising a plurality of recessed members affording a continuous channel around said form, and V-shaped notches in certain of said members opening into said channel.

7. The process of forming an electroplate

from a mold by electrolytically forming a copper plate on a matrix from said mold, said plate having a channel and notches therein and after backing said plate with metal detaching the outer margin at said channel, leaving a plate with V-notches in its edge.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

ARTHUR R. WARREN.

Witnesses:
CHARLES W. HILLS, Jr.,
FRANK K. HUDSON.