Dec. 8, 1925. 1,565,216

C. N. SMITH

ELECTROPLATED STEREOTYPE PLATE OR NICKEL PLATED PRINTING PLATE AND PROCESS OF MAKING THE SAME

Filed June 10, 1922

Fig. 1.

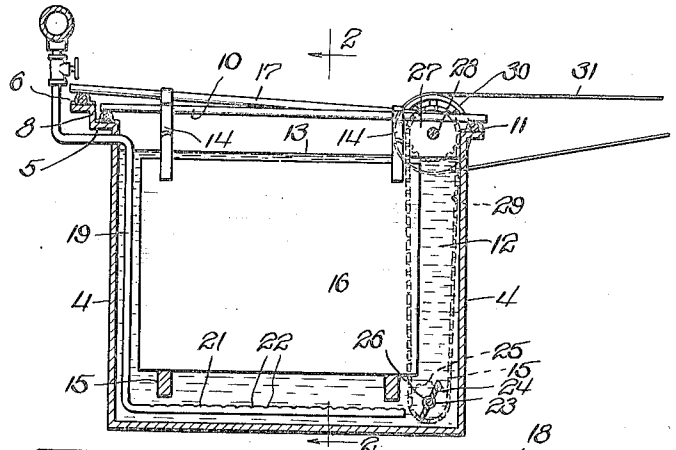


Fig. 2.

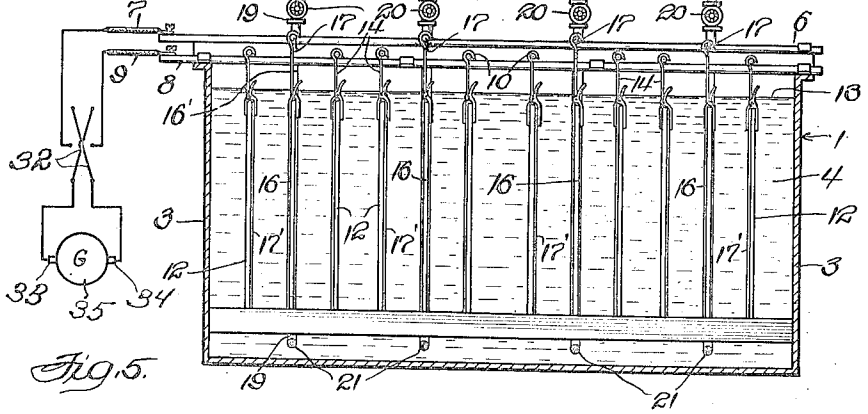


Fig. 5.

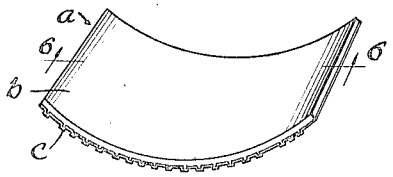


Fig. 3.

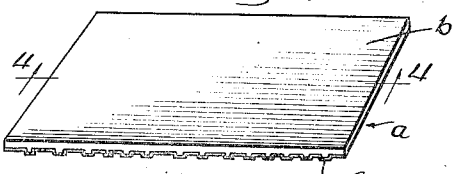


Fig. 6.

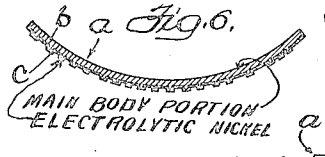


Fig. 7.

Fig. 4.

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Patented Dec. 8, 1925. 1,565,216

UNITED STATES PATENT OFFICE.

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ELECTROPLATED STEREOTYPE PLATE OR NICKEL-PLATED PRINTING PLATE AND PROCESS OF MAKING THE SAME.

Application filed June 10, 1922. Serial No. 567,406.

To all whom it may concern:

Be it known that I, CHRISTIAN N. SMITH, a citizen of the United States, residing in Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Electroplated Stereotype Plates or Nickel-Plated Printing Plates and Processes of Making the Same, of which the following is a specification.

This invention relates to a process of plating stereotype plates or similar metallic printing plates with a relatively harder metal, such as nickel or steel, and to electroplated metallic printing plates made and plated in accordance with my improved process and invention.

The principal object of the invention is to provide a simple, economical and efficient electroplated stereotype plate, or metallic printing plate having a body portion of relatively soft metal and a facing or printing surface formed of relatively hard metal deposited on such relatively soft body or plate.

My improved electroplated stereotype plate is adapted to be used either in the form of a flat metallic printing plate, or in the form of a curved electroplated printing plate, as required.

A further object of the invention is to provide an improved process for making electroplated metallic printing plates or stereotype plates comprising a body of relatively soft metal, and a shell or facing forming a printing surface electrolytically deposited on the relatively soft metal, and adapted to be used in the form of a flat printing plate, or curved and used upon printing presess requiring curved printing plates.

Other and further objects of the invention will appear from the following description and claims, and from an inspection of the accompanying drawings, which are made a part hereof.

This invention consists in the improved process hereinafter described and claimed, and in the improved article of manufacture or electroplated stereotype plate or nickel-plated metallic printing plate made in accordance with my improved process and herein described and claimed.

In the accompanying drawings is shown an electroplating tank and agitating device suitable for use in electroplating stereotype plates or metallic printing plates in accordance with my improved process and invention:

Fig. 1 is a view in transverse section of an electroplating tank and agitating device adapted to be used for electroplating stereotype plates or metallic printing plates in accordance with my improved process and invention;

Fig. 2 is a view in longitudinal vertical section of the apparatus shown in Fig. 1 taken on line 2—2 of said figure, looking in the direction indicated by the arrows;

Fig. 3 is a view in perspective of an improved electroplated stereotype plate, plated with nickel or steel in accordance with my improved process;

Fig. 4 is a sectional view of the printing plate shown in Fig. 3 taken on line 4—4 of said figure;

Fig. 5 is a view in perspective of a metallic printing plate or electroplated stereotype plate plated in accordance with my improved process and invention, and curved so as to be in suitable form for use upon printing presses requiring curved printing plates;

Fig. 6 is a transverse sectional view taken on line 6—6 of Fig. 5, looking in the direction indicated by the arrows, and

Fig. 7 is an end view of a portion of a pair of heating and bending rolls showing an electroplated stereotype plate or metallic printing plate made in accordance with my improved process and in process of being curved or bent into curved form suitable for use upon printing presses requiring curved printing plates.

In the practice of my improved process, I provide an electroplating tank 1, having a bottom 2, end walls 3 and side walls 4, of suitable dimensions, and which may be of any ordinary and well known or suitable form.

Extending along the upper margin 5 of one of the side walls of the tank 1, is a metallic rod or electric conducter 6, which is connected by means of an electric wire 7 with the positive pole of a dynamo or source of electric supply, not shown.

A similar metallic rod or electric conductor 8, mounted in approximately parallel relation to the rod 6, and supported on the

upper margin of the tank, is adapted to be connected by means of a wire 9 with the negative pole of the dynamo or source of electric supply.

A suitable number of stereotype plate supporting rods 10 are laid transversely across the tank, each with one extremity in contact with the negative rod or cathode 8, and with the opposite end of each transverse rod 10 resting upon a suitable non-conducting member or support 11 on the opposite side of the tank. Each stereotype plate 12, to be plated is supported inside of the tank and immersed within a plating solution, hereinafter described, the top surface of which is indicated by reference number 13. (See Fig. 1.)

Each stereotype plate 12 is detachably connected with a corresponding transverse electric conductor rod 10 by means of metallic hooks or electrically conductive supports 14, which may form supports for the stereotype plates. Any suitable means for supporting the plates may be employed, such for instance, as ordinary supporting bars 15 of non-conductive material, which extend longitudinally of the tank and are adapted to engage and support the bottom margins of the stereotype plates, as well as the anodes 16, hereinafter more particularly described.

A series of transverse anode supporting rods 17 are provided for supporting the anodes 16, which may be in the form of plates or of any desired, ordinary and well-known form, containing the desired metal or metals or combination of metallic elements to be electrolytically deposited on the stereotype plate or metallic printing plate. For instance, an anode composed of or containing nickel or nickel-steel, or nickel and any suitable alloy in the desired proportions, or containing the kind of metal which is to be electrolytically deposited, may be employed. Such anodes may be obtained in commercial quantities in the open market and are well known in the art.

These transverse anode supporting rods 17 are placed with one end thereof in contact with the positive electric conductor 6; and each of said rods extends across the tank between adjacent stereotype plate supporting rods 10. The opposite ends of the rods 17 rest upon a suitable support such as the bar 11 which is formed of non-conductive material.

The stereotype plates 12 to be electroplated are thus supported in the bath or electrolyte in the tank and between adjacent anodes 16, and are, by preference, in pairs with their printing faces 17 each facing toward an adjacent anode 16, the backs of the stereotype plates of each pair being adjacent to and facing toward each other. The stereotype plates 12 adjacent to the opposite end walls of the tank, have their printing faces 17' facing toward the adjacent anode 16.

With this arrangement of the elements above described, it will be readily understood that the electric circuit thus formed is adapted to conduct a suitable electric current through the anode rod 6, transverse anode supporting rods 17, anodes 16, electrolyte or bath 13, stereotype plates 12, electric conductors 14, stereotype plate supporting rods 10, cathode 8 and wire 9, and back to the dynamo or source of supply not shown.

A suitable agitating device is provided which consists of an air supply pipe 18, connected with a suitable source of air under pressure. Branch pipes 19 are connected with the main air supply pipe 18 at suitable intervals, and are each controlled by a cock 20, which may be of any suitable form. Each of these branch pipes leads downward to the bottom of the tank, and has a perforated transverse bottom pipe portion 21 directly beneath the bottom edge of a corresponding anode 16, each of said transverse bottom portions 21 being provided with a series of perforations 22 in its upper side and opening upward toward the bottom edge of such adjacent anode. Air is thus forced upward on both sides of the anode through the liquid or electrolyte in which the anode plates are immersed, thus thoroughly agitating the solution and causing currents of air and currents of the solution to pass rapidly over the surfaces of the anode plates.

A rotary agitating device is also provided, which is in the form of a paddle 23 having longitudinal lateral blades 24 extending lengthwise of the tank at or near the bottom and on one side thereof. This paddle or agitating device is rotatably mounted in suitable bearings at its opposite ends, and is provided with suitable driving means which may be of any suitable form. In this instance, a sprocket wheel 25 is fixed to the axle 26 of the rotary paddle. A sprocket wheel 27 is mounted on a shaft 28 journaled in suitable bearings at or near the top of the tank, and a sprocket chain 29 is mounted upon and connects said sprocket wheels. A belt pulley 30 is fixed to the shaft 28; and a belt 31 is adapted to connect said belt pulley to a suitable source of power.

The agitating means thus provided is adapted to cause the liquid or electrolyte contained in the tank to flow rapidly transversely across the tank and upward on one side thereof, and downward on the other and in contact with both sides of the anodes, and between the anodes and cathodes or metallic printing plates to be electroplated. And currents of air are at the same time caused to pass upward along and on both sides of the anodes, and between the latter

and the cathodes or printing plates to be electroplated.

In making an improved electroplated stereotype plate or nickel-plated metallic printing plate in accordance with my improved process I provide a stereotype plate or metallic printing plate which may be of any ordinary and well known form. Such a stereotype plate is ordinarily formed of a suitable metal or alloy comprising the following elements in substantially the proportions by weight here given:

	Per cent.
Antimony	17
Tin	4
Lead	79
Total	100

all intermixed and cast or moulded in any ordinary and well known manner to form a stereotype plate or metallic printing plate such as those in common use and well known in the art.

Such stereotype plates or metallic printing plates are found in practice to have a hard, bright, glossy surface which, unless properly treated and modified or removed, will prevent the proper depositing of nickel or nickel-steel upon the stereotype plate, and will render the finished electroplated stereotype plate unfit for use on account of the tendency of the plating, particularly nickel or nickel-steel plating, to crack and scale off, and to break and crumble and disintegrate in use or during the operation of bending or curving the plate, and on account of the failure of the nickel or plating to properly adhere to the relatively soft metallic main body portion of the stereotype plate or metallic printing plate, when the attempt is made to electroplate stereotype plates by such processes as are commonly employed or attempted and known to the art.

It, therefore, becomes necessary to properly treat the stereotype plate or metallic printing plate for the purpose of rendering it capable of properly receiving the nickel or similar metal to be electrolytically deposited thereon. The stereotype plate or metallic printing plate to be treated and electroplated is therefore thoroughly washed with a solution which consists of corrosive sublimate and water intermixed in suitable proportions.

The solution which I employ for this purpose consists of corrosive sublimate and water intermixed in the proportions of 8 ounces of corrosive sublimate to one gallon of water. These proportions may be varied, however, without departing from the spirit of my invention. And the solution should be provided in sufficient quantities to enable the stereotype plate to be thoroughly covered and washed and subjected to the action of the solution for a sufficient length of time to cause the solution to have the desired chemical action upon the smooth, oxidized surface of the stereotype plate or metallic printing plate to be electroplated. The corrosive sublimate is permitted to eat into or act chemically upon the glossy, bright printing surface of the stereotype plate or printing plate to a sufficient extent to destroy the polish and render the said surface less bright and smooth. A dead lusterless printing surface is thus obtained or produced, adapted to cause the nickel to adhere to the surface when electrolytically deposited thereon. The treating of the plate chemically with the solution containing corrosive sublimate is accompanied by a thorough rubbing and washing of the plate with a suitable brush while the surface of the plate is covered with the chemical solution, to thoroughly cleanse the plate and remove the finish or bright surface and the products of oxidation and produce a lusterless dead finish or outer surface. The plate will then be in condition to be placed in a suitable electrolytic bath and to properly receive the nickel, nickel-steel or other similar or suitable metal to be electrolytically deposited thereon in accordance with my improved process and invention.

For this purpose a suitable electroplating tank and apparatus is provided which may be of the form hereinbefore described, and shown in the drawings, or of any desired ordinary and well known or suitable form.

A suitable electrolytic bath or electrolyte is provided which consists, by preference, of a liquid solution containing the following ingredients intermixed in the proportions here given, as follows: double nickel salts $NiSO_4(NH_4)_2SO_4.7H_2O$, or double sulfate of nickel in dry crystal or powdered form, commonly known in commerce as "double nickel salts", and which may contain or comprise 14.85% nickel, or the equivalent of said material), 16 pounds; single nickel salts $NiSO_4.6H_2O$, or sulfate of nickel in dry crystal or powdered form, commonly known in commerce as "single nickel salts", and which may contain or comprise 21% nickel, or the equivalent of said material), 4 pounds; sulphate of iron, 2 pounds; Epsom or Rochelle salts, 1 pound; water, 100 gallons.

A sufficient quantity of a solution containing the above mentioned elements in the proportions above set forth, which may be varied to an extent however without departing from the spirit of my invention, is provided and placed in a suitable electroplating tank such for instance, as the tank 1 hereinabove described. And the stereotype plate or plates or metallic printing plates to be electroplated, are placed in the electrolyte or solution in proper relation to

a suitable anode or anodes, and embraced within an electric circuit suitable for the purpose of electroplating the stereotype plates or metallic printing plates to be operated upon.

In practice I mix the double nickel salts, single nickel salts, sulphate or iron, and Epsom salts or Rochelle salts above mentioned in substantially the proportions above set forth, and by preference, in dry and finely divided or comminuted condition and in individual packages, each package containing a quantity of said materials or ingredients in dry form, suitable to be conveniently handled and transported, and each package being of a convenient size to be introduced into the water or liquid, either by emptying the contents of the package into the liquid or by placing the package in the proper quantity of water or liquid solution in the tank and allowing the contents of the package to dissolve in the water or liquid.

I have found in practice that packages containing said elements intermixed in dry and finely divided or powdered form, each package weighing approximately five pounds, are of very convenient size to be introduced into the liquid, one of such packages to be used with a given quantity of liquid as required. Each package should be covered with an outer wrapping of waterproof material; and an inner lining of reticulated material or thin cloth may be provided, in which said ingredients are contained. The inner lining of thin fabric with the contents of the package therein may thus be conveniently suspended in the electrolyte or solution so as to enable the contents to be readily dissolved and permitted to escape from the container thus provided and into the electrolyte or solution contained in the tank. The solution may thus be kept constantly of the desired strength by an unskilled operator or attendant, as it is only necessary to follow directions on the package and use one package for each specified or predetermined quantity of water or liquid.

I prefer to introduce the above elements in dry, finely divided or powdered form into the water at a temperature of substantially 80 degrees Fahrenheit and in the proportions mentioned. And in practice the temperature of the solution should be raised to substantially 110 degress Fahrenheit by heating it with steam or other suitable means, before setting the tank in operation.

In electroplating the stereotype plate or metal printing plate with nickel or nickel-steel, suitable nickel or nickel-steel anode plates such as are obtainable in the open market and are well known and in common use in the art, are placed in the electrolyte and properly connected with and embraced within a suitable electric circuit in the ordinary and well known manner. A circuit having a voltage of 3½ to 4 volts is sufficient for the purpose. And under the conditions above described, it is only necessary to allow the plates to remain in the electrolyte for 20 to 25 minutes or thereabout to cause a shell of one and one-half thousandths of an inch of nickel or nickel-steel to be deposited upon the surface of the stereotype plate or metallic printing plate. And such a shell of nickel or nickel-steel is in practice substantially equivalent in efficiency and durability to a shell of copper of approximately ten or 12 thousandths of an inch in thickness.

By causing the electrolyte or solution contained in the tank to flow in very rapidly moving currents between the anodes and the printing plates, or cathodes, and forcing currents of air upward in both sides of the anodes, it is possible and practicable to employ a current of much larger voltage than is commonly used without burning or injuring the work. A strong electroplated stereotype plate having a strong and durable plating of nickel or nickel-steel deposited thereon, capable of being curved without injury to the plate, may thus be produced.

A flat electroplated stereotype plate *a* electroplated with nickel or nickel-steel in accordance with my improved process is shown in the drawings, and comprises a stereotype plate or metallic printing plate body *b* of relatively soft metal such as is commonly used in making stereotype plates, and a layer or plating *c* of nickel or nickel-steel which has been electrolytically deposited upon the relatively soft metallic body portion of the stereotype plate or metallic printing plate in accordance with my improved process and invention herein described. (See Figs. 3, 4, 5, and 6.)

The electroplated stereotype plate shown in Fig. 3 is shown in transverse section in Fig. 4, which clearly shows the layer of nickel or nickel-steel *c* electrolytically deposited upon the printing surface of the stereotype plate. And Figs. 5 and 6 show the electroplated stereotype plate *a* after it has been bent or curved into suitable form for use upon printing presses requiring curved printing plates.

I prefer, as a matter of convenience, to electroplate the stereotype plate before bending or curving the same and to heat and bend the plate after the layer of nickel or nickel-steel has been electrolytically deposited upon the printing surface thereof. The plate should be heated to a higher degree of temperature than the temperature commonly employed or ordinarily produced by steam heat, and I prefer to employ heating and bending rolls heated by means of gas directly in contact with or passing

through the rolls. The plate should be thus heated to a temperature of approximately 300 degrees Fahrenheit, progressively during the bending operation. It is entirely practicable, however, to first bend the stereotype plate or main body portion *b* before placing it into the electrolyte, and after first washing it with and submitting it to the chemical action of a solution containing corrosive sublimate and water as hereinbefore described, to then place the curved printing plate in the electrolyte or electroplating tank and electrolytically deposit the nickel or nickel-steel on the curved plate.

In Fig. 7, an electroplated stereotype plate *a*, comprising a relatively soft main body portion *b* and a layer of nickel or nickel-steel *c* electrolytically deposited thereon in accordance with my improved process, is shown in the operation of being bent into curved form suitable for use upon printing presses requiring curved printing plates. The electroplated stereotype plate is there shown as it would appear while passing between heating and drying rolls *d* and *e* which may be of any suitable, ordinary and well known or desired form. In bending the plate in the manner shown in said Fig. 7 metallic backing plates *f* are interposed between the printing side of the plate to be bent and the opposed heating and bending roll *e* as shown in said figure, said backing plates being secured to the roll *d* by suitable securing means and said electroplated stereotype plate *a* being held in position upon the roll *d* by means of a flanged securing bar *g* which extends longitudinally of the roll *d* along the periphery thereof and engages the adjacent margin *h* of the electroplated stereotype plate to be bent.

The flanged bar *g* and metallic backing plates *f*, serve to hold the printing plate to be bent in position during the operation of bending it. An intermediate backing sheet *i* of relatively soft material such as hard rubber is interposed between the metallic backing sheets *f* and the plate to be bent; and one or more filler sheets *j* of soft compressible material, such for instance, as blotting paper or similar fibrous compressible material in a moist condition is interposed between the backing sheet *i* and the printing face of the plate to be bent, and while moist is pressed into snugly-fitting contact with the printing face of the metallic plate to be bent, so as to form a temporary matrix during the operation of heating and bending. The temporary matrix is heated and dried while in contact with the printing surface of the plate *a* and during the operation of heating and bending the same. The matrix is thus caused to set progressively during the bending operation, and is removed when the bending is completed.

Very desirable results are accomplished by the practice of my improved process, as hereinabove described, which includes the washing of the stereotype plate body or metallic printing plate with corrosive sublimate and then electroplating the same in the manner above described.

I have found in practice, however, that improved results are accomplished by subjecting the stereotype plate body or metallic printing plate to the action of an electrolyte containing an anode of nickel, nickel steel, or other suitable material to be deposited thereon, and causing an electric current to pass through the electrolyte containing the printing plate in a reversed or opposite direction to that in which the electric current is ordinarily caused to flow in electrolytically depositing metal upon metallic printing plates or bodies to be electroplated, and then reversing the direction of flow of the electric current passing through the electrolyte in which the printing plate or stereotype plate to be electroplated is contained, and causing said electric current to pass through such electrolyte continuously in the direction necessary to cause particles of metal to be electrolytically deposited upon the printing side of such plate until the electroplating of the stereotype plate or metallic printing plate is completed.

In other words, the electric current is reversed and caused to pass through the electrolyte, first in one direction and then in a reversed direction successively or alternately for suitably short periods of time which may be prolonged as circumstances may require. And the reversing of the electric current may be repeated as desired, until the printing side of the stereotype plate body to be electroplated is thoroughly cleansed and all foreign substances have been removed therefrom. The electric current flowing in one direction causes foreign substances and small metallic particles to be dislodged and removed from the printing side of the printing plate body. A suitable lusterless surface is thus prepared and provided, which is adapted to receive the metal to be electrolytically deposited thereon.

The electric current is then caused to pass continuously or for a sufficiently prolonged period of time in the direction necessary to electrolytically deposit the nickel or other metal on the printing plate, as above described, or until the plating is completed.

In order to enable the reversing of the electric current to be accomplished with facility and repeatedly, as desired, I provide a suitable reversing switch 32 which may be of any ordinary and well known form and is interposed between conductor wires 7 and 9 and the opposite poles 33 and 34 of the generator, or source of electric supply 35. The reversing switch is thus adapted to re-

verse the current passing through the circuit which includes conductor wires 7 and 9, and embraces the anodes and the electrolyte in which the printing plate to be electroplated is contained.

An electroplated stereotype plate made, heated and bent in accordance with my improved process, as above described, will be found to be free from defects caused by cracking, scaling off, crumbling, deterioration or disintegration of the nickel plating or metallic plating which has been electrolytically deposited upon the relatively soft metallic body of the stereotype plate in accordance with my invention.

I claim:

1. The process of making electroplated stereotype plates which comprises providing a moulded stereotype plate body to be plated, submitting the surface of the printing side of such sterotype plate body to the chemical action of a solution containing corrosive sublimate and water, thereby removing foreign substances from the surface of the plate body and producing a lusterless surface on the printing side of said plate body, and then electrolytically depositing a plating on said lusterless surface.

2. The process of making electroplated stereotype plates which comprises providing a stereotype plate body to be plated, washing the surface of the printing side of such stereotype plate body with a solution containing corrosive sublimate and water, and exposing said surface to the chemical action of such solution, thereby removing foreign substances from the surface of the plate body and producing a lusterless surface on the printing side of said plate body, and then electrolytically depositing a plating containing nickel upon the printing side of said plate

3. The process of making electroplated stereotype plates which comprises providing a moulded stereotype plate body to be plated, washing the surface of the printing side of such stereotype plate body with a solution containing corrosive sublimate and water and exposing the plate body to the chemical action of such solution, thereby removing products of oxidation and other foreign substances from and producing a lusterless surface upon the printing side of said plate body, then electrolytically depositing a plating of nickel-steel on said lusterless surface, and then bending the electroplated stereotype plate thus formed.

4. The process of making electroplated printing plates which comprises providing a metallic printing plate body to be plated, washing the surface of the printing side of such metallic printing plate body with a solution containing corrosive sublimate and water and exposing said printing plate body to the chemical action of such solution, thereby removing foreign substances from and producing a clean lusterless surface on the printing side of said plate body, then electrolytically depositing a plating containing nickel upon the printing side of said plate, and then heating and bending the electroplated printing plate thus formed into curved form suitable for use upon printing presses requiring curved printing plates.

5. The process of making electroplated stereotype plates which comprises providing a moulded stereotype plate body of relatively soft stereotype metal to be plated, washing the surface of the printing side of such moulded stereotype plate body with a solution containing corrosive sublimate and water and exposing said stereotype plate body to the chemical action of such solution, thereby removing foreign substances from and producing a clean, lusterless surface on the printing side of said plate body, then electroplating the printing side of said plate with a plating containing nickel, and then heating and bending the electroplated stereotype plate thus formed.

6. The process of making electroplated stereotype plates which comprises providing a moulded stereotype plate body to be plated, washing the surface of the printing side of such stereotype plate body with a solution containing corrosive sublimate and water in substantially the proportions of eight ounces of corrosive sublimate to each gallon of water, thereby removing all scale and products of oxidation from and producing a clean lusterless surface on the printing side of said plate body, and then electrolytically depositing a plating of nickel-steel on said lusterless surface.

7. The process of making electroplated stereotype plates which comprises providing a moulded stereotype plate body to be plated, washing the surface of the printing side of such stereotype plate body with a solution containing corrosive sublimate and water in substantially the proportions of eight ounces of corrosive sublimate to each gallon of water, thereby removing all scale and products of oxidation from and producing a clean lusterless surface on the printing side of said plate body, then electrolytically depositing a plating of nickel-steel on said lusterless surface, and then heating and bending the electroplated stereotype plate thus formed.

8. The process of making electroplated printing plates which comprises providing a metallic printing plate body to be plated, washing the surface of the printing side of such metallic printing plate body with a solution containing corrosive sublimate and water and exposing said printing plate body to the chemical action of such solution, thereby removing foreign substances from and producing a clean lusterless surface on

the printing side of said plate body, then electrolytically depositing a plating containing nickel upon the printing side of said plate, and then forming a temporary matrix of pulp-like material upon and in contact with the printing side of said printing plate and between the latter and a flexible backing sheet, and heating and bending said printing plate and matrix forming material, by causing said printing plate, matrix forming material and flexible backing sheet to pass between hot, rotative heating and bending rolls, and then removing the temporary matrix.

9. The process of making electroplated stereotype plates which comprises providing a moulded stereotype plate body to be plated, washing the surface of the printing side of such stereotype plate body with a solution containing corrosive sublimate and water and exposing the plate body to the chemical action of such solution, thereby removing products of oxidation and other foreign substances from and producing a lusterless surface upon the printing side of said plate body, then electrolytically depositing a plating of nickel-silver on said lusterless surface, and then forming a temporary matrix of pulp-like material upon and in contact with the printing side of said printing plate and between the latter and a flexible backing sheet, and heating and bending said printing plate and matrix forming material, while said matrix forming material is in a moist plastic condition, by causing said printing plate, matrix forming material and flexible backing sheet to pass between hot, rotative heating and bending rolls, thereby drying the matrix forming material while in contact with the printing plate, and then removing the temporary matrix.

10. A process of making electroplated metallic printing plates, which comprises providing a metallic printing plate body to be plated, then subjecting the metallic printing plate body to the action of an electrolyte containing an anode, and causing an electric current to flow in opposite directions successively for successive predetermined periods of time through the electrolyte in which the printing plate body to be electroplated is contained, thereby cleansing and preparing a suitable lusterless surface on the printing side of such printing plate body, and electrolytically depositing metallic plating material on said surface.

11. A process of making electroplated stereotype plates, which comprises providing a moulded stereotype plate body to be plated, then washing the surface of the printing side of such stereotype plate body with a solution containing corrosive sublimate, then subjecting the stereotype plate body to the action of an electrolyte containing an anode embraced within an electric circuit, and causing such electric circuit to flow in reversed directions successively for successive predetermined periods of time through the electrolyte in which the stereotype plate is contained, thereby cleansing and preparing a suitable lusterless surface on the printing side of the stereotype plate for receiving and holding material to be electrolytically deposited thereon, and electrolytically depositing metallic plating material on such surface.

12. A process of making electroplated stereotype plates, which comprises providing a stereotype plate body to be plated, then subjecting the stereotype plate body to the action of an electrolyte containing an anode, and causing an electric circuit to pass through the electrolyte in a reverse direction to that in which an electric current normally flows in the operation of electrolytically depositing metallic plating material upon metallic printing plates, thereby cleansing the plate and preparing a lusterless surface on the printing side thereof for receiving metal to be electrolytically deposited on such plate, and then causing the electric current to be reversed and to flow in an opposite direction in the electric circuit and through the electrolyte containing the printing plate, thereby causing a layer of suitable metallic plating material to be electrolytically deposited on said printing side of such stereotype printing plate.

Signed at Chicago, in the county of Cook and State of Illinois, this 2nd day of June, 1922.

CHRISTIAN N. SMITH.