

M. A. DROITCOUR.
 PROCESS OF MAKING TONED PRINTING PLATES.
 APPLICATION FILED APR. 16, 1910.

985,664.

Patented Feb. 28, 1911.

Fig. 1

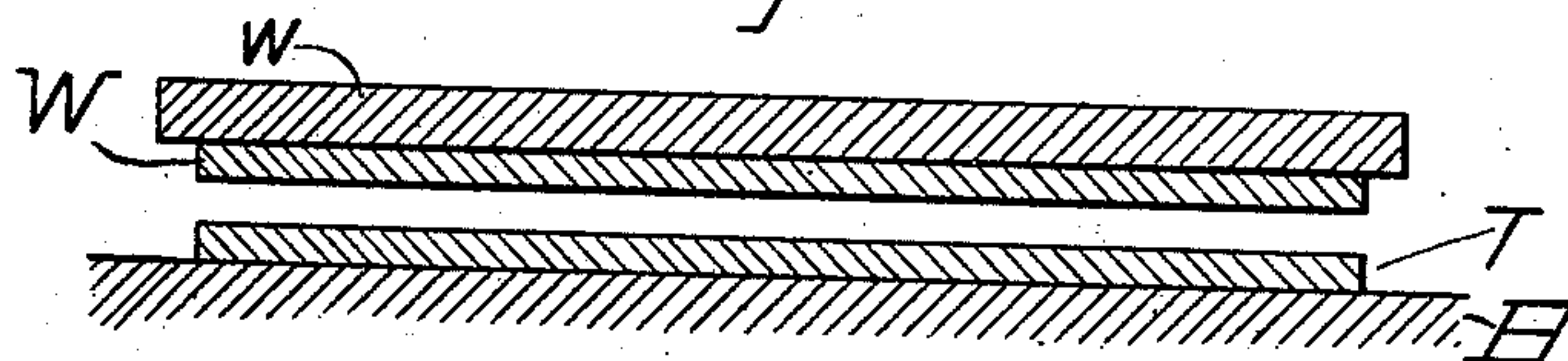


Fig. 2

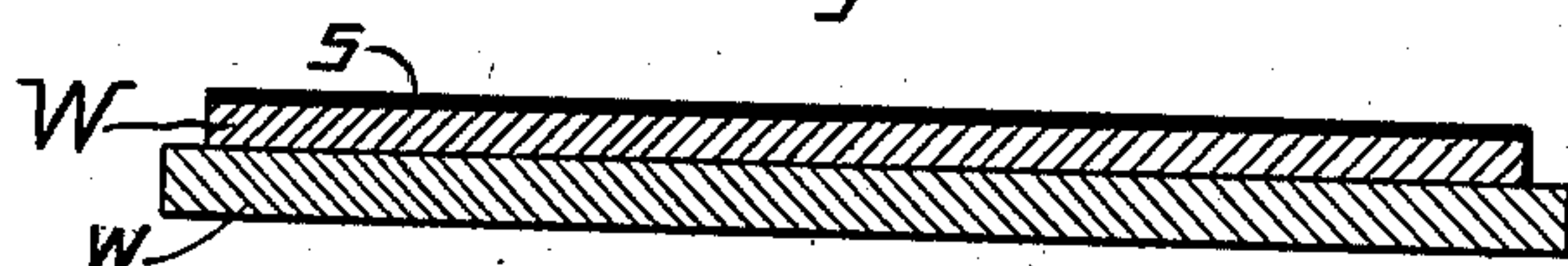


Fig. 3

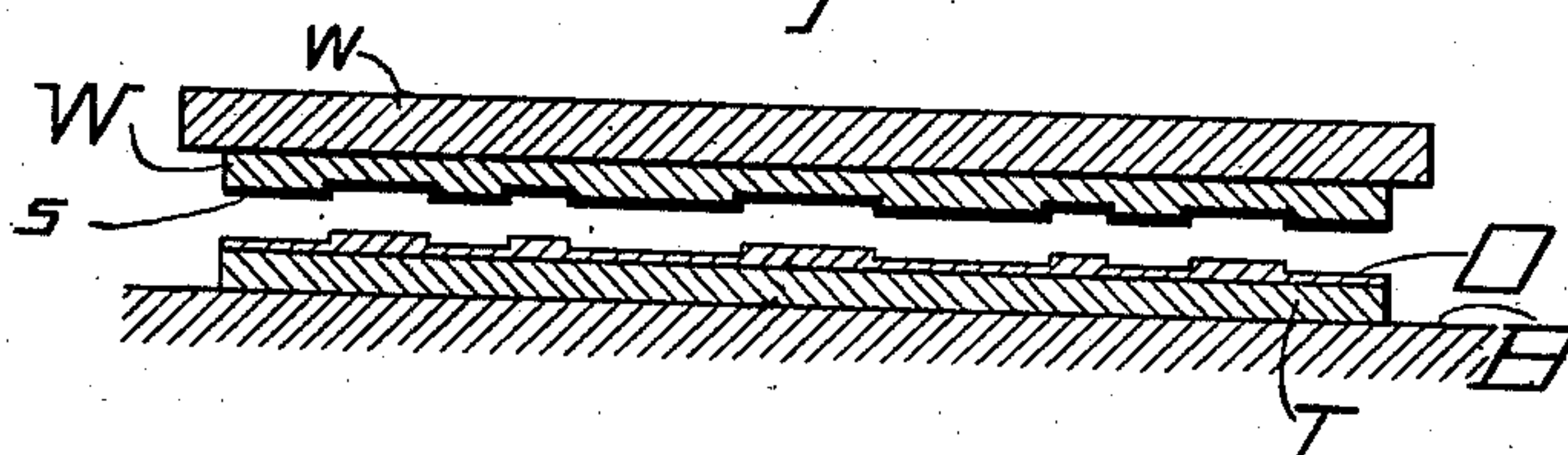


Fig. 4

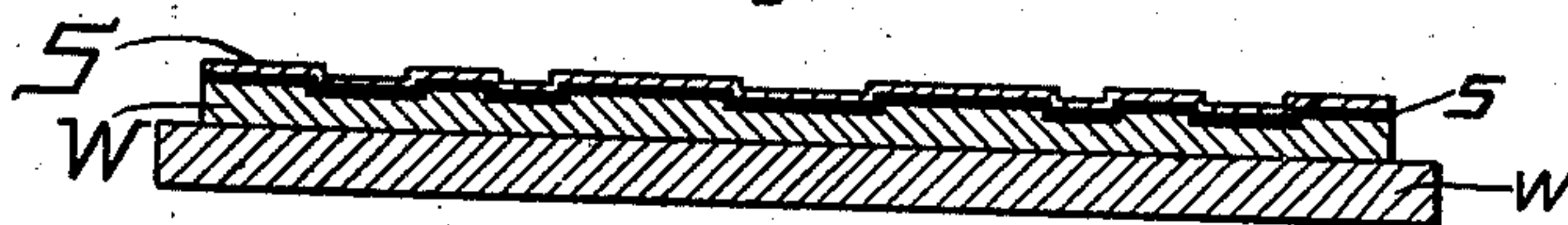


Fig. 5

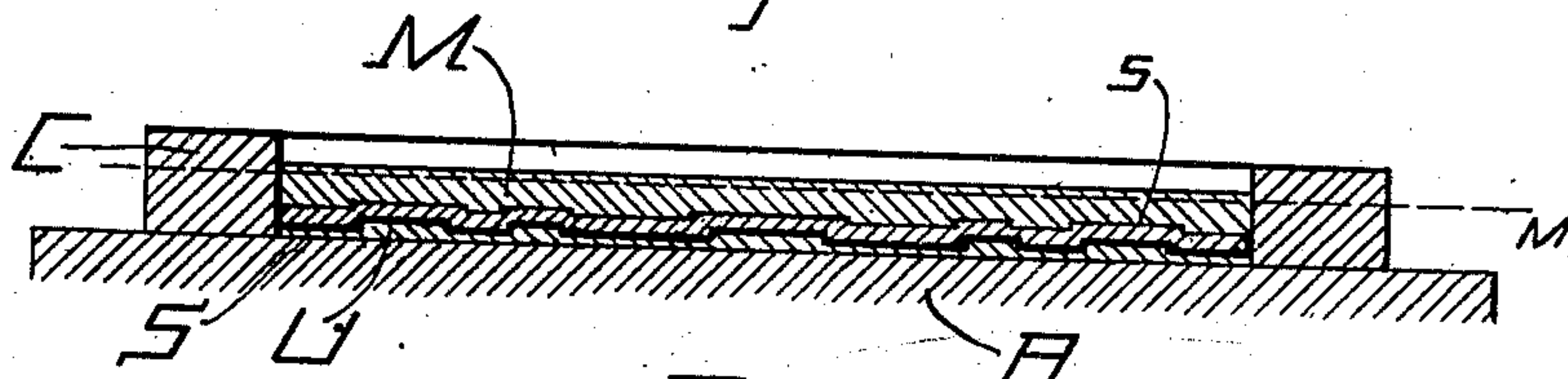


Fig. 6



Witnesses

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PROCESS OF MAKING TONED PRINTING-PLATES.

985,664.

Specification of Letters Patent

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To all whom it may concern:

Be it known that I, MICHAEL A. DROITCOUR, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Processes of Making Toned Printing-Plates; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in the art of making "made-ready" or "toned" printing plates, in which the desired "lights" and "shades" in the impression taken therefrom are obtained by varying the surface of the printing plate itself, so as to obtain greater pressure at the points where the darker prints are desired and less pressure at the points where lighter impression is desired.

The object of the present invention is to produce the desired tones in the printing plate during the process of making the shell or surface of such plate, so that the printing surface of the shell will be toned prior to the completion of the making of the shell and at a time when it will be possible to effect the toning with the least possible distortion of the metal, and whereby the most delicate variations in tone can be obtained in the simplest and easiest manner and such tones thereafter preserved during the formation of the shell and the backing thereof to form a printing plate therefrom, without requiring distortion of the shell, or the shell and backing, or the completed plate, in order to tone same.

The invention does not require any special apparatus and can be performed in the simplest and most inexpensive manner while producing the finest practical results in toned plates.

I will describe the invention with reference to the accompanying drawings which illustrate various steps in my novel method of preparing a toned printing plate, and will enable any one familiar with the art to practically utilize the invention; and I refer to the claims for summaries of the novel features and steps in the process for which protection is desired.

Figure 1 is a diagrammatical elevation of an original printing surface or type form, and a wax sheet and backing preparatory to forming the mold or matrix in the wax from

such surface. Fig. 2 is a diagrammatical view of a wax mold or matrix with a metallic "skin" or partially formed very thin shell deposited thereon. Fig. 3 illustrates diagrammatically the toning of this "skin" or partly formed shell. Fig. 4 illustrates diagrammatically the complete toned shell formed by depositing additional metal upon the "toned" skin. Fig. 5 shows one way of backing up such shell to form a printing plate. Fig. 6 is a diagrammatical sectional view of a finished printing plate.

In one method embodying the invention a wax mold or matrix is formed in the ordinary way, as for instance by impressing a sheet of wax W attached to a suitable backing w, upon a printing surface or type form T which may rest upon a suitable bed. By the term "wax" I intend to include any suitable material which is ordinarily used, or may be used, for receiving an intaglio impression from the printing surface, and upon which may be subsequently deposited a metallic shell, as indicated at S, Fig. 4. The means for and mode of forming such shells—as by electrotyping—being well known, requires no description herein.

In accordance with my invention after a thin "skin" of metal has been deposited upon the face of the wax matrix, as indicated at s in Fig. 2, the depositing of metal on the mold is suspended and this skin is "toned" by impressing the wax matrix and skin on the form after a previously prepared overlay O has been placed on the form as indicated in Fig. 3. Said overlay may be of any well known or desired construction,—for instance an etched zinc plate, or a chalk overlay, or a cut paper overlay, which are now commonly used; and well understood in the art. The overlay being constructed so as to be thinner at places corresponding to those portions of the printing surface which it is desired shall have less pressure during the taking of an impression; and thicker, at the places corresponding to the portions of the printing plate which it is desired shall have more pressure during the taking of an impression from the finished printing plate. Such overlay O, as indicated in Fig. 3, should be placed in exact register with the original form of type, or printing surface T, and the wax matrix W with its skin s of metal is then re-impressed upon the form and against the interposed overlay O, so that

the wax matrix and the metal skin *s* deposited thereupon are "toned" in accordance with the overlay *O*, so that the surface of the wax matrix, and the skin *s* instead of remaining absolutely plane surfaced, is depressed, more or less, where it contacts with projections on the overlay and in accordance with the size and thickness of such projections. The thus "toned" wax mold and metal skin thereon, are then removed from the form and additional metal deposited upon the "skin" in the usual manner to form with or convert such skin into a metal shell *S* (Fig. 4) of the usual thickness.

On account of the previous "toning" of the skin as described, the completed shell *S* will have its printing surface toned in accordance with the tones imparted to the skins by the overlay *O*. This toned shell then can be backed to form a printing plate in the usual way, and when so backed is ready for printing toned impressions without any manipulation whatsoever of its printing surface,—such surface being already toned in accordance with the overlay. It will be observed that the tones of the plate are determined and formed before the shell is completed; so that the shell itself does not have to be distorted after formation in order to tone it,—nor does the completed plate have to be distorted in order to tone it.

The plate may be backed in various ways; as indicated in the drawings, Fig. 5, I prefer to lay the shell face downward upon a suitable bed *B* within a chase *C*, and pour sufficient molten metal *M* into the chase to form a plate of the desired thickness. After the metal is set the plate is removed and reduced to proper thickness, and plane surfaced on the back, by removing any surplus metal; as by planing it along the line *m* Fig. 5; the resultant plate after its edges are trimmed being ready for printing, as indicated in Fig. 6. Of course the thin metal skin *s* becomes an integral and indistinguishable part of the shell *S*, and I have simply illustrated it diagrammatically in the drawings to facilitate the explanation of the invention.

I preferably support the face of the shell *S* while applying the backing *M* thereto and while planing the back of the plate, by means of an overlay *U*, Fig. 5, as described in my Patent No. 952,312 of March 15th, 1910, in order to prevent any distortion of the shell by the weight and heat of the molten metal poured thereupon to back it, or the distortion of the printing surface by the pressure of the planers or grinders used to reduce the plate to the desired thickness, and its back to a uniform plane surface. But this overlay in the present instance is not used in any sense to tone the plate, the toning being effected as above described dur-

ing the formation, but prior to the completion of, the thin type surface or shell.

Having described my invention what I claim is:

1. The herein described method of making toned shells for printing plates, consisting in forming a matrix, producing a skin of metal on the face of the matrix, toning the skin of metal by pressing the same against a suitable toning surface, and then supplying sufficient metal to the toned skin to form a shell.

2. The herein described method of making toned printing plates consisting in forming a matrix, producing a skin of metal on the face of the matrix, toning the matrix and skin of metal thereon by pressing the same against a suitable toning surface, and then supplying sufficient metal to the toned skin to form a printing plate.

3. The herein described method of making toned printing plates, consisting in depositing a thin skin of metal upon a suitable mold or matrix, toning the matrix and skin by pressing same against an overlay; then depositing additional metal to the skin to form a shell; and subsequently backing such toned shell to form a printing plate.

4. The herein described method of making toned shells for printing plates, consisting in taking an impression on a wax sheet to form a matrix, depositing upon this matrix a skin of metal, toning this skin by impressing it while on the matrix against a suitably prepared toning surface, and thickening the skin to form a shell by depositing additional metal thereon.

5. The herein described method of making toned printing plates, consisting in taking an impression on a wax sheet to form a matrix, depositing upon this matrix a skin of metal, toning this skin by impressing it while on the matrix against a suitably prepared toning surface, thickening the skin to form a shell by depositing additional metal thereon; and subsequently backing the toned shell to form a printing plate, substantially as described.

6. The herein described method of making toned printing plates, consisting first in making a matrix by impressing a plastic sheet upon a printing surface, depositing a skin of metal upon the matrix; placing a suitably prepared overlay upon the printing surface and pressing the matrix with its skin of metal against the overlay upon the printing surface; then backing the toned skin to form the plate.

7. The herein described method of making toned printing plates, consisting in taking an impression from a printing surface upon a wax sheet, depositing a skin of metal upon the impressed surface of the wax sheet; placing a suitably prepared overlay upon the printing surface and pressing the wax

sheet with its skin of metal against such overlay, then depositing additional metal upon the toned skin to form a shell, and finally removing the wax sheet and applying a suitable backing to the toned shell.

8. The herein described method of making toned printing plates consisting in taking an impression on a wax sheet to form a matrix, depositing upon this matrix a skin of metal, toning this skin by impressing it while on the matrix against a suitably prepared toning surface; thickening the skin to form a shell by depositing additional metal thereon; applying sufficient metal to the back of the toned shell to form a printing plate, and finally trimming the finished plate.

9. The herein described method of making toned printing plates, consisting in taking an impression from a printing surface upon a wax sheet, depositing a skin of metal upon the wax sheet; placing a suitably prepared overlay upon the printing surface and pressing the wax sheet with its skin of metal against such overlay; then depositing additional metal upon the toned skin to form a shell; removing the wax sheet; applying an underlay to the face of the shell to prevent

distortion thereof during the formation of the backing, and applying metal to the back of the shell to form a plate, substantially as described.

10. The herein described method of making toned printing plates, consisting in making a suitable matrix; then forming a metal skin on the matrix; toning the matrix and skin by pressing same against a suitable toning surface; depositing additional metal on the toned skin to form a shell; placing the toned shell face downward on a suitable support, applying an underlay to the face of the shell to prevent distortion thereof during the backing of the shell; applying metal to the back of the shell to form a plate; and finally reducing the plate to the desired thickness while the face of the shell is supported by the underlay, substantially as described.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

MICHAEL A. DROITCOUR.

Witnesses:

ELMER HASSMANN,
SYLVIA WILLS.