E. E. NOVOTNY.

PRINTING PLATE MATRIX.

APPLICATION FILED AUG. 6, 1918.

1,377,513. Patented May 10, 1921.

Fig. 1.



Fig. 2.

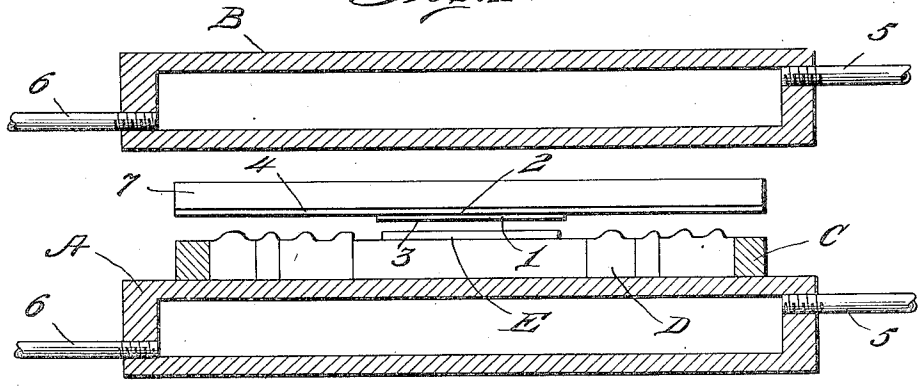
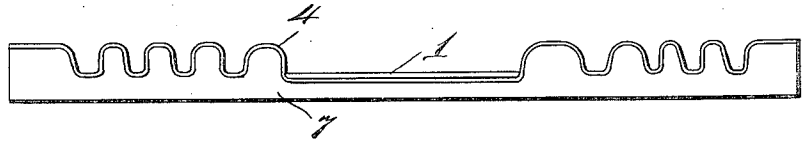


Fig. 3.



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PRINTING-PLATE MATRIX.

1,377,513. Specification of Letters Patent. Patented May 10, 1921.

Application filed August 6, 1918. Serial No. 248,646.

To all whom it may concern:

Be it known that I, EMIL E. NOVOTNY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Printing-Plate Matrices, of which the following is a specification.

This invention relates to certain novel and useful improvements in printing plate matrix.

In the manufacture of molded printing plates, such as those composed of hardened and set plastic material, it is desirable to employ a metallic faced matrix which will impart to the printing plate a printing surface capable of producing the fine lines and detail of both half-tone and ordinary type. As is well known the printing plate frequently embodies a combination of both type matter and etchings or the like, and such a combination plate, especially when of metal, is usually made by first making a plate from the type matter, by pressing the latter in a wax body and molding a plate from the wax body, the plate so molded being shaved to the thickness of the etching and is then soldered on to the etching. This combination plate is then employed in making a lead matrix from which the electrotype plates may be made.

In preparing the matrix for making molded printing plates from plastic material, I eliminate the tedious operation such as above, for my matrix is made by direct contact of the printing body including the combination of relatively soft type matter and a relative hard etching. However, in order to bring out the fine lines and detail of an etching it is necessary to employ a relatively hard metallic face section for the matrix, and on the other hand in order to prevent the breaking down, crushing or marring of the relatively soft faces of the original type body, it is necessary to employ a comparatively soft metal for the matrix face section taking the impression of the type.

One of the objects of my invention therefore is to provide a matrix having a metallic molding face composed of sheets of metallic material of relatively different hardness and degrees of stiffness whereby ordinary type matter and half-tones of etchings may be accurately reproduced without injury to the original type body, and with all the fine detail of both the etching and the type.

Another object of the invention is the making of the matrix in a single operation by the contact of the combination original type body and etching against the metallic blank from which the matrix is made, this being accomplished at a relatively low pressure so that I eliminate the great part of the time and expense heretofore incident to the manufacture of printing plates and their matrices.

With the above recited objections and others of a similar nature and view my invention consists in the improved matrix set forth in the following appended claims.

In the accompanying drawings:

Figure 1 is an end view of a metal faced blank or mat employed in making my improved matrix.

Fig. 2 is a view showing the matrix blank or mat associated with a combination type body and etching placed between two press platens preparatory to the making of the matrix, the platens being merely conventionally illustrated.

Fig. 3 is an end view of a completed matrix the molding face being somewhat exaggerated.

Referring now to the accompanying drawings in detail: The letter A indicates the lower platen of a press while B designates the upper platen thereof. This press may be of any well known form and the platens thereof, which are here shown as hollow, are merely conventionally illustrated. Upon the lower platen A I impose a chase C having locked therein a body of type matter D, having relatively soft printing faces, as the type are of course formed of ordinary type metal. Associated with the type is an etching or half-tone E, such as commonly used in producing a pictorial illustration to be employed in connection with the reading matter produced from the type. It is from this combination of type matter and etching locked in the chase, that I directly reproduce my matrix, without the necessity of any intermediate steps or operations.

In the manufacture of my matrix I utilize a relatively thin sheet of metallic alloy, preferably a foil sheet composed of an alloy of tin and lead in equal proportions, such a sheet being indicated at 1. This alloy

sheet has its back face 2 coated with an adhesive, such as a rubber cement, or a phenolic cement, or other substance suitable for the purpose. The uncoated face 3 of the alloy sheet is placed in contact with the printing face of the etching E. I then impose upon an adhesively coated face of the alloy sheet a second metallic sheet 4 which also extends over and is intended to be brought into molding contact with the type D. The adhesive of the alloy sheet of course causes the latter to adhere to the metallic sheet 4. This metallic sheet is preferably in the nature of a lead foil, of any suitable thickness, although if desired such sheet foil may also be composed of an alloy, with the lead constituent thereof predominating in order that the sheet 4 may be relatively softer than the foil sheet 1. When the two sheets have been thus assembled, and as shown in Fig. 2 the press platens which are heated in any suitable manner, as by the admission of steam passing through inlet pipes, 5, and outlet pipes 6, are closed and heat and pressure thus being applied the molding face is produced upon the matrix. The sheet 4 will take the type impressions accurately and of the proper depth, without smashing or crushing the type, while the alloy sheet 1, which is relatively harder than the sheet 4 as above mentioned, will take the fine details of the etching. In my earlier application Serial No. 198,975 filed October 28, 1917, I have referred to the use of an alloy sheet composed of equal proportions of tin and lead for the purpose of making a molding face of the matrix and have therein set forth the advantages of such an alloy sheet in acquiring or reproducing the fine detail of an etching. Such a sheet, however, is not so well adapted for the production of a molding face from original type matter, as on account of its hardness it is liable to pit and produce a granular face upon the type.

While the matrix may be made of simply the foil sheets as above mentioned, I prefer to apply a backing during the molding operation which backing will form a permanent unitary support for the metal molding face of the matrix. In Fig. 2 this backing is indicated by the numeral 7 and is preferably composed of fibrous material such as matrix paper impregnated with a liquid phenolic condensation product such as bakelite, condensite or similar synthetic resins. When the heat and pressure is applied in the molding of the matrix this backing being subjected to heat and pressure will be caused to adhere to the metal face of the matrix and will subsequently harden and set to an infusible form as is well known.

Of course, if desired other material possessing the requisite degree of plasticity so as to be capable of molding may be employed for the backing, and this material may be metallic or non-metallic as may be deemed advantageous, the only requisite being the capability of molding.

What I claim is:

1. A printing plate matrix having a metallic molding face composed of a plurality of metallic foil sheets, both sheets presenting exposed impression-taking surfaces, and differing from each other in hardness, one of such sheets being imposed upon and adhesively attached to another of such sheets.

2. A printing plate matrix having a metallic molding face composed of a sheet of relatively soft metal foil and a sheet of relatively hard metal foil united therewith, both sheets presenting exposed impression-taking surfaces.

3. A printing plate matrix having a molding face composed of a sheet of relatively soft metal foil having characters produced therein from type, and a relatively hard sheet of metallic alloy having half-tone dots produced therein from an etching.

4. A printing plate matrix having a molding face composed of metallic foil sheets of relatively different hardness and stiffness, and a backing upon which the molding face is mounted.

In testimony whereof I have hereunto set my hand.

EMIL E. NOVOTNY.