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METHOD OF PRODUCING PRINTING SURFACES FOR INTAGLIO PRINTING

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Fig. 1.

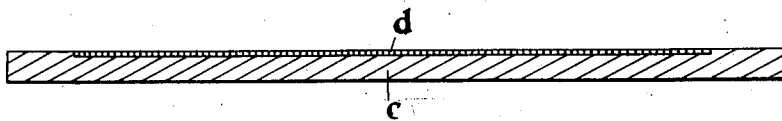
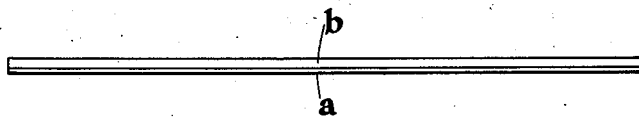


Fig. 2.

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METHOD OF PRODUCING PRINTING SUR-
FACES FOR INTAGLIO PRINTING

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1 Claim. (Cl. 95—5.6)

The invention relates to a method of producing printing surfaces for intaglio printing, which offers as an advantage over the methods hitherto used, the possibility of again using the printing surface after a run or series of impressions, by simply cleaning the printing surface with hot water for the next run or series of impressions, without the necessity for the metal plate or metal cylinder upon which the intaglio printing surface is formed being ground down or stripped off, as in customary methods, whereby there is on the one hand a substantial saving in material and on the other a number of operations hitherto necessary are dispensed with.

In the known copper intaglio printing processes, the diapositives and the letterpress impressions mounted together on a single plate are first copied on a film of light sensitive material, on which by further copying operation this copy is provided with a screen. This film after exposure to light is transferred to a smoothly ground plate or cylinder of copper or other metal usually employed and developed. By means of a suitable etching liquid such as a solution of iron perchloride the plate or cylinder of copper is etched through the layer of resist formed by the developed film of gelatine. This method has the disadvantage that after the run, the etched sheet of copper must be ground down or stripped off. For further etching it is then necessary generally to electro deposit a new copper film, whereupon the copper plate or cylinder must again be smoothly ground.

According to the invention the surface of the printing plate or cylinder is first provided with a uniformly deep screen, whereby the surface is divided into very small squares by fine lines.

So far as copper cylinders or plates are used, the screen can be applied for example in the known manner by etching. The screen may however be produced by mechanical means, as for example by milling, which may be advantageous for example in the use of printing plates made of steel or similar material.

The production of intaglio plates or formes is effected according to the invention by first copying the letterpress and/or images on a film of light sensitive material such as gelatine mounted on paper, the film being of a thickness corresponding to the depth of the screen of the printing surface. After being suitably softened or soaked such films are pressed down with the film side on the screened copper or other metal plate or cylinder. By treatment with warm water, the film support is removed while the gelatine layer remains

adhering to the metal surface. By further treatment with hot water the film is developed, that is to say the unexposed gelatine becomes dissolved while the exposed gelatine becomes more or less difficultly soluble according to the amount of exposure. The gelatine relief thus produced fills the screen in greater or lesser measure corresponding to the light effect produced. The gelatine mass that projects on the screen is removed. After the application to the printing surface of the fluid ink and the scraping off of the excess ink as usual in intaglio printing, only the screen nap filled partially or not filled at all with the gelatine relief is filled with ink so that according to the depth of the depressions the ink is transferred on impression to the printing paper.

The process of the invention is illustrated diagrammatically in the accompanying drawing in which *a* (Figure 1) is the light sensitive film having the backing *b* of paper or other support and *c* (Figure 2) is the printing surface upon which the screen *d* is applied.

As before mentioned, the gelatine relief laid in the screen needs only to be washed with hot water after the run and the printing surface can be used again for the next run immediately.

Thus a number of operations are dispensed with that were formerly necessary such as the second copying, the repeated screening, the etching, the repeated grinding down of the printing surface and the electro-deposition of a new copper film, quite apart from the considerable saving in material which is obtained by the process according to the invention.

The present invention is applicable not only for producing small printing plates but it is particularly suitable for the production of large flat and cylindrical printing surfaces such as are usually employed in rotary intaglio printing.

I claim:

A method of producing printing surfaces for intaglio printing, characterized in that the metal of the printing surface to be produced is provided with a uniformly deep screen, and in that the letterpress and images are reproduced on a light sensitive film mounted upon a suitable support, the film corresponding in thickness to the depth of the screen, whereupon the film after being softened or soaked is pressed down with the film side upon the untreated screened metal surface so that the light sensitive film enters the hollows of the screen, after which the film support is removed, and the film is developed.

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