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PROCESS FOR PRODUCING PLANOGRAPHIC PRINTING PLATES

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2 Claims. (Cl. 204—8)

This invention relates to a method for producing printing blocks and the like for any kind of duplicating, either by platen printing, rotary printing or the like.

So-called chemical blocks are known in which the ink-repellent effect of the portions of the surface of the block which are not to be covered by the picture, are produced by applying metallic mercury. It has been found that the ink-repellent effect of these portions is not, as has been hitherto generally assumed, due to an amalgam combination between the mercury and the actual metal of the picture support, but to a film-thin metallic mercury layer which remains unamalgamated on the surface of the existing amalgam portions. As soon as this metallic mercury layer has been used up during the printing, owing to the fact that the mercury is pulled off by the ink or the inking cylinders, the amalgam layer is no longer sufficient to repel ink.

It has already been endeavoured to revive during the printing operation this metallic mercury at the portions of the block which are not to print, by introducing small quantities of mercury preferably finely distributed into the ink or by applying it on the inking cylinder or directly on to the block. These methods allow a considerable increase in the number of copies, but they are inconvenient and constitute a certain danger to the health both of the operators of the machines and also to the users of the prints, because it cannot be avoided that traces of metallic mercury are contained in the prints.

The present invention is therefore based on the recognition of the fact, that it must be possible to apply the mercury in bound condition so that it securely adheres to the surface of the block so that the portions thus treated and not covered by the actual picture remain ink-repellent for printing a sufficiently large edition, without the mercury being pulled off the block. The invention consists in suspending into a galvanic bath a mercury metal amalgam as anode and a sheet metal plate on which a picture has been copied as cathode so that during the electrolytic transition from anode to cathode the amalgam deposits only on the portions of the cathode plate which are not covered by the picture. After the termination of the electrolytic treatment, the printing plate acts ink repellent on the portions which are not covered by the picture. This can be effected in a satisfactory manner by applying a finished amalgam of mercury and one of the suitable metals copper, tin, zinc onto the surface of the block, which amalgam is obtained by cold method by grinding chips of the metal selected with mercury to form an amalgam.

The amalgam of mercury and one of the metals copper, tin, zinc thus obtained can be applied to the surface of the block by mechanical means, for example, the amalgam produced by cold method is rolled onto the surface of the block, or the application can be carried out galvanically by suspending the amalgam of mercury and the metal selected as anode and the block as cathode in a galvanic bath. It is immaterial whether the amalgam obtained is applied onto the whole surface of the block or only onto the portions thereof which are not covered by the picture. In the latter instance the actual picture for printing must be previously applied onto the block by some known copying process. The portions not covered by the picture are preferably slightly corroded and the recessed portions thus produced are filled with the finished amalgam.

A few examples are hereinafter briefly described:—

1. Chips of suitable metal, such as copper, tin, zinc or the like are ground with mercury, and the amalgam thus obtained is rolled onto a brass plate or other block or is molded to form a solid finished block. The actual picture for printing is applied by any suitable copying process onto the surface of the block thus obtained, the portions not covered by the picture then absorbing no ink owing to their mercury content.

2. A suitable block is suspended as cathode and a plate, shaped corresponding to the block, obtained by grinding mercury with metal, for example copper dust is suspended as anode in a galvanic bath. The amalgam then deposits galvanically on the surface of the block, namely over the entire width thereof, if the picture has not been previously applied onto the block. However, if the picture has been previously applied on the block, the amalgam would deposit only on the portions of the block not covered by the picture.

3. On a block, for example a brass sheet, a size copy is applied in known manner. The portions of the block which are not covered by the copy are deeply corroded in a mordant bath. The plate is then painted with chlorate of zinc and dipped in a bath containing zinc and mercury in liquid condition. Thus, the corroded portions, which are not to print, are filled. Any excess metal is removed from the block and the block is smoothed and made ready for printing by being passed through a mangle or the like.

We claim:—

1. Process for producing planographic printing plates consisting in suspending in a galvanic bath a mercury metal amalgam as anode and as cathode a sheet metal plate on which a picture has been copied and depositing by electrolytic transition mercury metal amalgam on the areas of said plate which are not covered by the picture.

2. A sheet metal plate for planographic printing on which at the portions not covered by the picture a mercury metal amalgam is deposited electrolytically said deposit adapted to render these portions ink repellent.

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