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LITHOGRAPHING PROCESS

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6 Claims. (Cl. 101—149)

My invention relates generally to the art of lithography and particularly to the offset types of process commonly employed therein, and an important object of my invention is to provide a procedure applicable to such types of processes and others whereby the useful life of the etched lithographic plate is increased several times.

Another important object of my invention is to provide procedure of the character indicated whereby the necessity of the steps of gumming and washing the prepared plate is eliminated.

Another important object of my invention is to provide means whereby the prepared lithographic plate is rendered practically immune to damage by exposure to air, by contact with grease, by scum, and by other agencies ordinarily met with in lithographing.

Another important object of my invention is to provide a prepared lithographic plate which is permanent in character and does not spoil through oxidation or through contact with or exposure to the usual damaging agencies met with in the course of conducting a lithographing process or in attempted storage of the plate.

Other important objects and advantages of my invention will be apparent from a reading of the following description and example given for illustrative purposes and showing a preferred embodiment of my invention.

In accordance with the present invention the lithographic plate is put through the usual processing up to and including the transfer of the image of the photographic negative onto the sensitized lined lithographic plate and the inking thereof. From this point on the procedure is peculiar to the present invention in that instead of applying to the plate the usual etching solution the operator applies thereto in the usual way, first, a plate solution, and secondly, a fountain etch solution, both solutions being peculiar to the present invention and cooperative in action to fulfill the objects and advantages of the invention stated hereinabove.

The fountain etch solution consists of a solution of about 2 ounces in one (1) gallon of water of the resultant of a mixture of from 1 to 8 ounces of chrome alum (potassium chrome alum having the formula $Cr_2(SO_4)_3.K_2SO_4.24H_2O$); from 2 to 6 ounces of phosphoric acid; from ¼ to 1 ounce of tannic acid; from ¼ to 3 lbs. of gum arabic; and one (1) gallon of water.

A preferred form of the fountain etch solution prior to dilution of 2 ounces thereof in the stated one (1) gallon of water consists of the resultant of a mixture of substantially:

Chrome alum	ounces (by weight)	4
Phosphoric acid	do	4
Tannic acid	do	¼
Gum arabic	pound (by weight)	½
Water	gallon (by weight)	1

The plate solution consists of the undiluted resultant of a mixture of from 1 to 8 ounces of chrome alum; from 2 to 6 ounces of phosphoric acid; from ¼ to 2 ounces of tannic acid; from ½ to 4 lbs. of gum arabic, and one (1) gallon of water.

A preferred form of the plate solution consists of the resultant of a mixture of substantially:

Chrome alum	ounces (by weight)	4
Phosporic acid	do	4
Tannic acid	do	1
Gum arabic	pound (by weight)	1
Water	gallon (by weight)	1

The plate solution when applied to the inked plate performs the functions of the usual etching solution and, in addition, processes the etched face of the plate so as to harden and fix the inked image and give permanency thereto and prepare the same for reception of the protective fountain etch. The fountain etch solution reacts with the then resident reaction product on the face of the plate, continues the etching and cleans the uninked parts of the plate and enables the inked parts to resist the effects of repeated printing and handling and exposure to the ordinarily damaging agencies set forth.

The plate solution gives longer life to the lithographic plate and makes it unnecessary to gum the plate during stops in production. The plate is made in considerably less time because of the elimination of some operations now generally used when making the plate.

The present process makes the plate more resistant to scumming and when the ink is allowed to pile up during the printing it can be very easily and positively cleaned off. The present process makes a plate less liable to destruction

by the usual carelessness and accidents of pressmen. The fountain etch solution makes possible the correction of plates by dot etching.

Although I have set forth and described herein preferred embodiments of my invention it is to be definitely understood that I do not desire to limit the application of the invention thereto, but any change or changes may be made in the procedure and in the materials employed, within the spirit of the invention and the scope of the subjoined claims.

Having described the invention, what is claimed as new is:

1. An etched plate fixing solution consisting of the product of a mixture of chrome alum, phosphoric acid, tannic acid, gum arabic, and water.

2. In a process of preparing a metal plate for lithographic printing which involves sensitizing the plate, transferring thereto a photographic image, and inking, the steps of applying to the inked surface of the plate a plate solution consisting of a relatively concentrated aqueous solution of chrome alum, phosphoric acid, tannic acid and gum arabic and allowing the reaction to proceed, then applying to the resultant surface of the plate a relatively dilute aqueous solution of chrome alum, phosphoric acid, tannic acid and gum arabic.

3. In a process of preparing a metal plate for lithographic printing, the said process involving conventional steps of sensitizing the face of the plate and applying thereto a photographic image to and inking said face, the steps of applying to the inked face an undiluted plate solution consisting of the resultant of a mixture of chrome alum, phosphoric acid, tannic acid, gum arabic and water, and allowing the reaction to proceed; then applying to the resultant face a relatively dilute fountain solution consisting of a solution in about one gallon of water of about two (2) ounces of the resultant of a mixture of chrome alum, phosphoric acid, tannic acid, gum arabic and water.

4. Method of etching and preserving the inked face of a lithographic plate, said method consisting in applying to the inked face a plate solution consisting of the resultant of a mixture of from 1 to 8 ounces of chrome alum, from 2 to 6 ounces of phosphoric acid, ¼ to 2 ounces of tannic acid, ½ to 4 pounds of gum arabic and one gallon of water and allowing the consequent reaction to proceed; then applying to the resultant face of the plate a fountain solution consisting of a solution in about one gallon of water of about 2 ounces of the resultant of a mixture of 1 to 8 ounces of chrome alum, 2 to 6 ounces of phosphoric acid, ¼ to 1 ounce of tannic acid, ¼ to 3 pounds of gum arabic and one gallon of water.

5. An etching solution of the character described, said etching solution consisting of the resultant of a mixture of about 1 to 8 ounces of chrome alum, from 2 to 6 ounces of phosphoric acid, from ¼ to 2 ounces of tannic acid, from ½ to 4 pounds of gum arabic and about one gallon of water.

6. An etched plate fixing solution of the character described, said fixing solution consisting of a solution in about one gallon of water of about 2 ounces of the resultant of a mixture of substantially 1 to 8 ounces of chrome alum, 2 to 6 ounces of phosphoric acid, ¼ to 1 ounce of tannic acid, ¼ to 3 pounds of gum arabic and one gallon of water.

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