Aug. 13, 1940. H. R. JACQUEROD ET AL 2,210,923

PROCESS OF GRAINING INTAGLIO AND GRAVURE PRINTING PLATES

Filed July 10, 1939

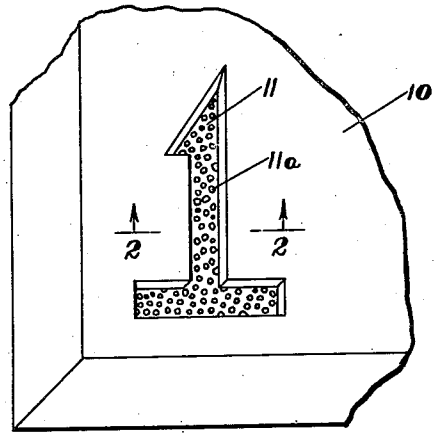


Fig. 1

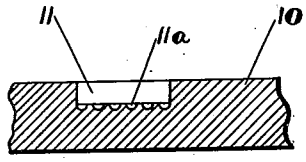


Fig. 2

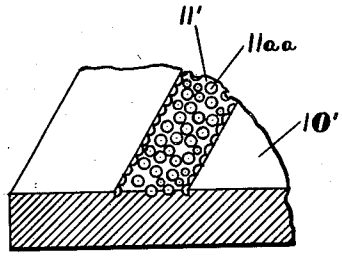


Fig. 3

INVENTORS
HENRY R. JACQUEROD AND
JAMES H. GIBSON.

BY

ATTORNEY.

Patented Aug. 13, 1940 2,210,923

UNITED STATES PATENT OFFICE

2,210,923

PROCESS OF GRAINING INTAGLIO AND GRAVURE PRINTING PLATES

Henry R. Jacquerod and James H. Gibson, Teaneck, N. J.; said Gibson assignor to said Jacquerod

Application July 10, 1939, Serial No. 283,522

9 Claims. (Cl. 101—170)

This invention relates to new and useful improvements in making intaglio printing plates, gravure printing plates, and the like.

The invention has for an object to make certain improvements in intaglio plates and certain improvements in gravure plates, each of these improvements being obtainable by substantially the same method of procedure.

Insofar as the intaglio plates are concerned the invention proposes a method for graining the bottoms of the intaglio lettering or other incisions, the purpose of which is to prevent the inks from wiping out during the operation of wiping, and for the purpose of holding ink in the plate on a high speed rotary press. Heretofore intaglio plates were mechanically cross hatched in the bottoms of their lettering and other incisions for the purpose of preventing the inks from wiping out during the operation of wiping and for holding ink in the plate on a high speed press. However such mechanical treating of the plate is very expensive. It requires the labor of a skilled engraver who is required to put in many hours of work to cross hatch even a small area.

This invention proposes a method for graining the bottoms of the intaglio lettering or other incisions by an ink roll-up method.

Specifically the invention proposes forming the intaglio plate in a conventional manner, or other manner, provided it is formed by some etching process, and while it still has the acid resist top on it is proposed to process the plate in accordance with this invention, to obtain the graining in the bottom of the intaglio lettering and other incisions.

Specifically the invention contemplates characterizing the invention process by cleaning the plate with a solution of acetic acid and salt and etching and then inking the plate with the acid resist top still on it all the way down to the bottoms of all incisions. It is then proposed that the plate be etched until the acid breaks down the ink and the bottoms of the incisions are formed with a stippled pattern. It is this stippled pattern which is intended to take the place of the engravers cross hatching used in the present day in intaglio plates.

Insofar as the gravure plates are concerned this invention proposes a method for forming lettering on the gravure plate in a way to do away with the gravure screen. Heretofore it was customary to produce gravure plates by the carbon-tissue stratum method. This resulted in the screen being clearly visible in the letters as well as the picture portions of the plate. The gravure screen is objectionable in the lettering since it produces a ragged edge on the lettering.

This invention proposes a method for making a gravure plate by which the lettering is devoid of the usual gravure screen and by which the edges of the lettering are straight and clean.

This invention proposes a method which is characterized by constructing the gravure plate in the regular way but without the gavure screen in the lettering, and while the plate still has its acid resist top cleaning same with a solution of acetic acid and salt, and then etching and then inking up the plate, and etching until the etchant breaks down the ink and produces a stippled formation in the surface of the plate representing the letters. The stippling simulates the usual ink wells. On the new gravure plate however the edges of the lettering will be straight and clean when thus produced.

Still further the invention proposes methods for making gravure plates and intaglio plates as mentioned which are simple and which may be practiced at a low cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a fragmentary perspective view of an intaglio plate constructed in accordance with this invention.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary enlarged perspective view of a gravure plate embodying this invention.

Our use of the word "ink" and its derivatives in this specification and in the claims is intended to cover the broad meaning of the word, that is, it includes inks with or without pigments and acid resist substances capable of being spread like ink, and "inking" and its derivatives refers to the application of this material upon the plate.

With particular reference to Figs. 1 and 2 it is pointed out that the intaglio plate is produced in the following way:

The intaglio plate is constructed in a conventional way according to known methods by some etching process so that it has an acid resist top. It may be constructed by photographic methods or other methods. If constructed by photographic methods the plate has an image or other matter exposed upon a light sensitive coating.

After the usual printing and developing of the image the plate is prepared in the usual way to produce the acid resist top, for receiving the first bite of the etchant. Usually the first bite is a light one and then the plate is prepared with subsequent deeper bites by protecting the sides and shoulders of the first bite against further action of the etching fluid by the application of suitable resistant material. In this way the plate is etched several times until the incisions are of a satisfactory depth. Up to this point the construction of the plate was made according to present day methods. This invention now departs from the customary procedure. In the old way the bottoms of the intaglio lettering and other incisions are now cross hatched by manual means. In accordance with this invention the plate from this point is treated as follows:

The plate with the acid resist top is cleaned with a solution of acetic acid and salt and then etched. Then it is inked all the way down to the bottoms of the incisions. This may be done by a common roller having a resilient or yieldable surface. It is inked lightly if fine stippling is desired in the bottoms and heavily inked when coarse stippling is desired. The plate is then etched until the acid breaks the ink down and the bottoms of the incisions are formed in a stippled-effect design. This stippled effect has the same action as the manual cross hatching. It will prevent inks from wiping out during the operation of wiping, and will hold the ink in the plate on a high speed rotary press.

If high spots in the bottoms of the incisions are not properly stippled, the plate is reinked to the bottoms of the incisions and reetched. This may be repeated any number of times.

In the drawing reference numeral **10** indicates the intaglio plate; **11** an intaglio letter or other incision in the plate; and **11*a*** the grained bottom produced by the etching method just described.

Fig. 3 refers to the application of substantially the same method as previously described but to the surface of the plate so as to produce the gravure plate. The reference numeral **10'** indicates the printing plate, **11'** a letter or other printing image on the plate, and **11*a*** a stippled formation produced in accordance with this invention, in the surface of the plate, to constitute the small ink wells necessary to receive and hold the printing ink.

The plate shown in Fig 3 is produced in the following way:

The lettering or other material desired upon the plate is photographically engaged thereon, according to present day well known methods. However in the lettering portions of the plate the regular gravure screen is omitted or removed. These portions are then treated in the following manner: After the usual printing and developing of the plate and while all portions of the plate representing areas about the letters are still protected with the acid resist top, the plate is cleaned with a solution of acetic acid and salt, etched and then inked in and then etched lightly. It is reinked and re-etched until the etching produces a good stippled formation in the surface of the gravure plate. This stippled formation comprises a plurality of ink wells needed in gravure printing. However the edges of the lettering will be found to be straight and the letters will be devoid of the usual gravure screen.

While we have illustrated and described our invention with some degree of particularity, we realize that in practice various alterations may be made. We therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the correlated parts without departing from the spirit or the scope of the appended claims.

Having thus described our invention, what we claim as new and desire to secure by United States Letters Patent is:

1. A method for graining the bottoms of intaglio lettering and other incisions in an intaglio printing plate the purpose of which is to prevent the inks from wiping out during the operation of wiping—and for the purpose of holding ink in the plate on a high speed rotary press, consisting in forming the intaglio plate in a conventional manner, with the top protected by the usual acid resist top, and inking the plate heavily or lightly all the way to the bottoms of all incisions, and etching the plate until the acid breaks the ink down and the bottoms of the incisions are formed in a stippled pattern formation.

2. A method for graining the bottoms of intaglio lettering and other incisions in an intaglio printing plate the purpose of which is to prevent the inks from wiping out during the operation of wiping—and for the purpose of holding ink in the plate on a high speed rotary press, consisting in forming the intaglio plate in a conventional manner, with the top protected by the usual acid resist top, and inking the plate heavily or lightly all the way to the bottoms of all incisions, and etching the plate until the acid breaks the ink down and the bottoms of the incisions are formed in a stippled pattern formation, said intaglio printing plate prior to its being etched, being cleaned off with a solution of acetic acid and salt.

3. A method for graining the bottoms of intaglio lettering and other incisions in an intaglio printing plate the purpose of which is to prevent the inks from wiping out during the operation of wiping—and for the purpose of holding ink in the plate on a high speed rotary press, consisting in forming the intaglio plate in a conventional manner, with a top protected by the usual acid resist top, and inking the plate heavily or lightly all the way to the bottoms of all incisions, and etching the plate until the acid breaks the ink down and the bottoms of the incisions are formed in a stippled pattern formation, said intaglio plate being reinked and re-etched several times to strengthen the stippled formation.

4. In a method of making a gravure plate, the steps of inking up the plate while it still has its acid resist top, and then etching until the acid breaks the ink down so as to form a stippled pattern in the letters or other material printed upon the plate.

5. In a method for making a gravure plate, the steps of inking up the plate while it still has its acid resist top, and then etching until the acid breaks the ink down so as to form a stippled pattern in the letters or other material printed upon the plate, and the step of cleaning said plate with a solution of acetic acid and salt prior to the inking step.

6. In a method for making a gravure plate, the steps of inking up the plate while it still has its acid resist top, and then etching until the acid breaks the ink down so as to form a stippled pattern in the letters or other material printed upon the plate, and the step of cleaning said plate with

a solution of acetic acid and salt prior to the inking step, and repeating the inking and etching steps to strengthen the stippled pattern.

7. In a method of making a gravure plate, the steps of printing, developing, and forming an acid resist top on the plate in the usual way without the use of a gravure screen, inking the plate and etching the plate until the etchant breaks the ink up, whereby a stippled pattern is formed in the surface of the plate constituting the ink well for the gravure plate.

8. In the method of making a gravure plate, the steps of printing, developing, and forming an acid resist top on the plate in the usual way without the use of a gravure screen, inking the plate and etching the plate until the etchant breaks the ink up, whereby a stippled pattern is formed in the surface of the plate constituting the ink well for the gravure plate, and the step of cleaning the plate with a solution of acetic acid and salt before the inking step.

9. In a method of making gravure plates, the steps of printing, developing and forming the plate with an acid resist top in the usual way, then lightly inking the plate, and then etching the plate until the etchant breaks the ink down to produce a stippled formation in the bites of the plate.

HENRY R. JACQUEROD.
JAMES H. GIBSON.