

April 5, 1932.

J. HAGGERTY ET AL

1,852,115

PROCESS OF PREPARING PRINTING PLATES

Filed Dec. 24, 1930

Fig. 1.

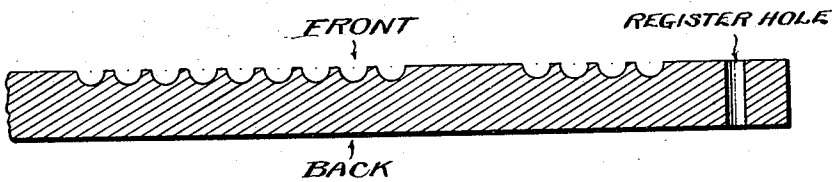


Fig. 2.

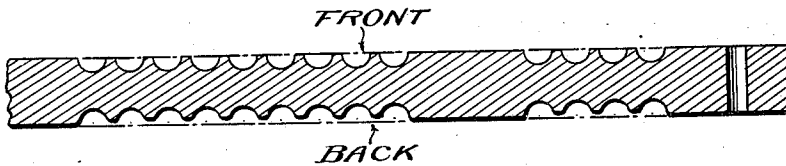
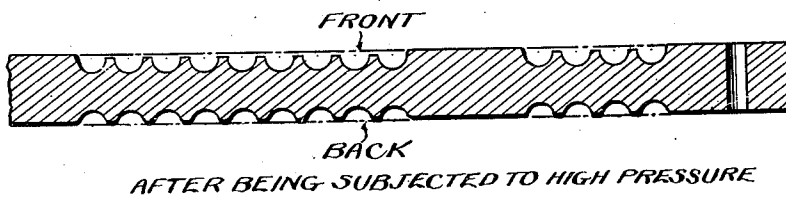


Fig. 3.



JOHN HAGGERTY and
DAVID JOHNSTON
Inventors
by
Henry M. Pughan
Attorney

UNITED STATES PATENT OFFICE

JOHN HAGGERTY, OF EAST ORANGE, NEW JERSEY, AND DAVID JOHNSTON, OF BALDWIN, NEW YORK

PROCESS OF PREPARING PRINTING PLATES

Application filed December 24, 1930. Serial No. 504,638.

This invention relates to improvements in printing plates and processes of preparing the same and it has for its object to provide an original plate of such character that when used as an original plate from which to produce electrotypes, nickeltypes, stereotypes, lead molds or other printing plates, the latter will come from the mold with the proper makeready or tone characteristics embodied in them; to provide a process by which an original or master plate made as usual in other respects can be reformed by simple treatment readily within the range of such skill as is conveniently obtainable in the art so as to embody in itself the desired characteristics requisite to impart to the final printing plates made from this original plate self-contained makeready characteristics; to provide a process or method of making and preparing printing plates which enables the makeready treatment of the original makeready plate to be susceptible of test from time to time to the end that the desired result may be secured accurately and with certainty; to provide a process in making print plates which is extremely economical in that the makeready is imparted to the original plate only and any desired number of electrotypes or other reproductions may be made from such original, each having the same makeready characteristics; to provide a method which greatly minimizes the chance of errors in setting up the forms and securing the exact results desired; to provide printing plates and the process of making the same which produces plates suitable for use on most, if not all, of the modern printing presses; to provide printing plates of a character especially valuable and advantageous for use in multicolor printing and particularly when such multicolor printing is done on multiform presses which impart the several color impressions to the sheets of paper as it passes through the press a single time and in general to produce printing plates which have many novel, advantageous characteristics over those now in use. For the purpose of illustrating the steps involved in carrying out the novel features of the present invention, reference may be had to the drawings in which:—

Figure 1 is a detail enlarged cross sectional view illustrating a plate having the front or printing face thereof etched in accordance with the first step of our process.

Figure 2 is a diagrammatic view similar to Figure 1 illustrating the second step of the process wherein the back of the plate has been etched after being printed with a negative made from the front of the plate.

Figure 3 is an enlarged detail view of the finished plate after the printing face of the plate has been subjected to high pressure.

The process according to the present invention is as follows:—

After the front or printing face of the plate has been printed on metal and in the usual photoengraving manner, we take the negative flat which has been already printed as above, lay on a glass table, letting the light shine through, painting in extreme highlights in silhouettes, vignettes etc. with opaque, which prevents lights shining through when printed on metal therefore recording pure white without screen dots. We then make suitable register marks and drill a needle point hole through each register mark. The various negatives on the flat are then united as one so that they can be taken off the flat. This we do by coating them with a rubber solution and then with a stripping coat of collodion which prevents the stripping coat from mixing with the screen coat. We coat the plate three times with stripping collodion, drying each coat before the next coat is applied. Three coats are necessary so that the film will be thick, firm and will not stretch. The negatives, now one film, are then soaked off with diluted acetic acid and stripped from the flat or plate glass. They are then reversed

and placed on the other side of the previously coated plate so as to exactly register with the frontal printing face of the plate. We then coat the back of the plate with a cold enamel, place the reverse negative on the back of the plate in accurate position by means of the register marks which register with the holes through the plate. This gives a perfect register. We now print the back of the plate in the same manner as ordinary photoengraving is printed. The back of the plate now has the same subjects printed thereon in perfect register with the subjects on the front of the plate. We now spot the front of the plate to cover defects not covered with enamel. We then examine the back and highlights not already taken care of with the opaque painted in, and then rub off enamel with pointed pieces of charcoal, Scotch stone or a scraping tool. The plate can now be etched in an etching machine, both sides at once, half minute front and half minute back, and reverse until each side has had a minute or more according to the judgment of the photoengraver. The front of the plate is then finished in the usual manner. The images are then very clear, the back being just the same as the front. The back of the plate is then rubbed with magnesia chalk and parts that have been opaqued, charcoaled, Scotch stoned or scraped are lower than the rest of the plate which are covered with enamel. We now clean off the enamel from the back with lye, potash or other suitable chemical, leaving the pure copper of the back exposed. We then coat the entire front or printing face with shellac and paint in dark tones on the back with shellac or other acid resisting solution and give the plate another etch in the etching machine. We then rub chalk on the back of the plate to more clearly see the depths of the etching and if necessary paint in the lighter shades but this is not usually necessary for ordinary work. The plate is now finished and where necessary the highlights can be engraved out and vignettes blended by rubbing with Scotch stone or rubbed off with a trimming tool. Each of the half tones on the flat, perhaps twenty or more are now treated as usual outlined, squared, routed, beveled, engraved, spotted, cut apart and proved.

We prefer, however, to finish the printing face of the plate in the usual manner, then rub chalk of magnesia into the flat plate of many subjects, then photograph the flat plate with a camera equipped with scales which will produce a negative with the exact dimensions of the plate, the photograph being taken without a screen and exposing the negative until the highlight dots are dropped out of the negative, then coat the back of the plate with sensitized film which shows the register marks and register the negative with the holes bored

through the register marks on the front of the plate and then print and etch as heretofore described, the front of the plate being protected by a coating of shellac. This method eliminates the coating of the negative, stripping it, turning it and saves much time and labor. When the back of the plate is finished, the front of the plate is subjected to high pressure as before described to impart make-ready characteristics thereto.

In two, three or four color work we do not use original negatives because they do not show true separations until worked out by color etcher. After the color job has been O.K.'ed and no further corrections are necessary, we rub chalk of magnesia into the plate showing the screen dots up very distinctly. The plates are then photographed with a camera equipped with scales which will produce a negative with the exact dimensions of the proof, the photograph being taken without a screen and exposing the negative until the highlight dots are dropped out. We then register the negative with the holes bored through the register marks on the front of the plate and then print and etch as heretofore described, the front of the plate being protected with a coating of shellac.

After the original plates are treated as described, the original plate is then placed in a hydraulic press preferably with hard surface cardboard on the face of the plate and pressure applied to the extent necessary to lower the highlights and semi-solids to the required amount. Electrotypes, stereotypes, etc. can readily be made from the original which will produce the makeready characteristics of the original plate, eliminating the usual labor of makeready resulting in great saving of labor and time. The average time consumed on an eighteen page form is about one and a half hours per plate.

Having described our invention, we claim:

1. In a process for imparting makeready characteristics to metallic printing plates, the steps of photoengraving images on the front or printing face of the plate, photographing the printing face of the plate, placing the negative on the back of the plate in register with the picture on the front of the plate, printing and etching the back of the plate and then subjecting the front of the plate to high pressure.

2. In a process for imparting makeready characteristics to metallic printing plates, the steps of photoengraving images on the front or printing face of the plate, photographing the printing face of the plate without any screen, placing the negative on the back of the plate in register with the picture on the front of the plate, printing and etching the back of the plate and then subjecting the front of the plate to high pressure.

3. In a process for imparting makeready characteristics to metallic printing plates,

5 the steps of photoengraving images on the
front or printing face of the plate, rubbing
chalk into plate, photographing the printing
face of the plate, without any screen and ex-
10 posing the negative until the highlight screen
dots are dropped out of the negative and
placing the negative on the back of the plate
in register with the picture on the front of
the plate, printing and etching the back of
the plate and then subjecting the front of
the plate to high pressure.

15 DAVID JOHNSTON.
JOHN HAGGERTY.

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