UNITED STATES PATENT OFFICE.

FREDERICK WILLIAM SEARS, OF WELLINGTON, NEW ZEALAND.

PROCESS FOR MAKING HALF-TONE ENGRAVINGS FOR USE IN LITHOGRAPHY.

No. 859,342. Specification of Letters Patent. Patented July 9, 1907.

Application filed May 5, 1904. Serial No. 206,563.

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM SEARS, a subject of the King of Great Britain, residing at Herald street, Wellington, in the Colony of New Zealand, have invented a new and useful Process for Making Half-Tone Engravings for Use in Lithography; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to a process for making engravings, for use in connection with lithography. The process of making such engravings at present in use, consists in photographing the matter through a screen, and, from the negative so obtained, making the desired block. This block consists of a large number of dots in relief, which when the block is printed from, appear all over the print.

This process, however, has been designed in order to get rid of the dots on the white places and to regulate the sizes of the dots on the remaining portions so that the largest shall be upon the solid black, ground and they shall gradually diminish in size on to the lighter shades, merging themselves into the actual white. The printed matter will thus be sharply defined and will be more effectually shaded than with the ordinary process.

The method employed consists in first taking a photograph of the desired matter. The negative then produced, if the original matter consists of a wash drawing or photograph, is photographed by means of a camera through the screen, so that a positive in half tone is produced. In the making of the half tone positive the dark portions of the first negative, or those portions which are light in the original, will nullify the effect of the screen so that in the positive obtained, the white spaces will be clear of the screen, while those parts which are lightest in the negative will be blackest in the positive. The intermediate shadings will show out the screen dots according to their different densities. From the half tone positive thus obtained, which will be in itself a true reproduction of the shades of the original, a contact negative is made in the ordinary manner, that is, by laying the positive upon a sensitized medium spread evenly over the surface of a plate and exposing the same to the light and then developing. An etching fluid is then spread over the plate and allowed to etch same to a slight depth. The result obtained is an intaglio half tone plate or stone and is ready for the lithographer to fill in with ink and print in the usual lithographic manner.

When it is desired to work the matter on to the surface of a stone or aluminium or zinc plate, the positive is placed in contact with a dry gelatin of collodion plate, and the result is a high light negative. This negative when placed in contact with a sensitized aluminium or zinc plate or stone, exposed to the light in the usual manner and developed is ready for the lithographer without any necessity for fine etching. Upon the other hand the difficulty of removing the screening can be readily effected in block work by what is known as "fine etching" which consists in eating the dots away locally with acid.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. The improved process for making half tone engravings for use in lithography and other printing, such process consisting in first photographing the desired matter, then photographing the negative thus obtained through a screen so as to produce a half tone positive with pure high lights and then printing from such positive on to a metal plate or stone in the usual manner.

2. The improved process of making half tone engravings which consists in first photographing the desired matter, then photographing the negative thus obtained through a screen to produce a half tone positive with pure high lights, then obtaining a contact negative from such positive, and then printing from such negative on a lithographic surface, substantially as described.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

FREDERICK WILLIAM SEARS.

Witnesses:
W. ALEXANDER,
G. WIX.