(No Model.)

C. PALMER.

METHOD OF MAKING DRAWINGS.

No. 353,325. Patented Nov. 30, 1886.

Fig 1

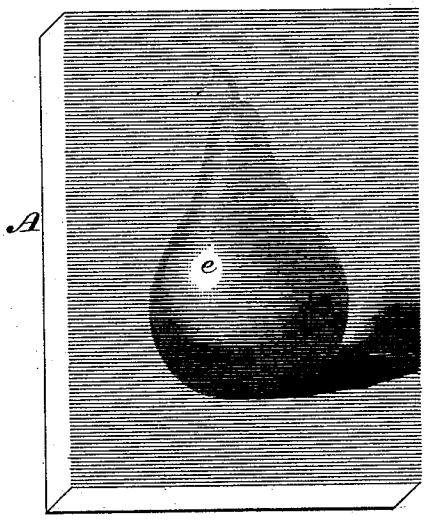


Fig 2

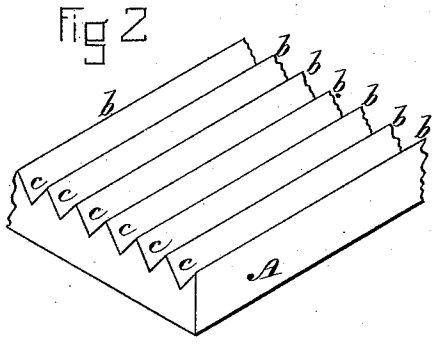


Fig 3

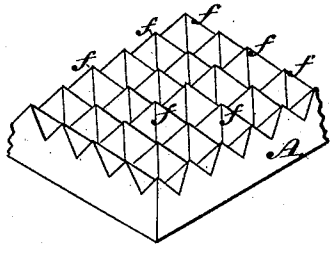


Fig 4

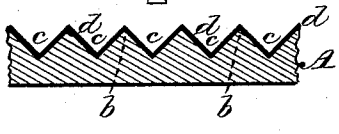
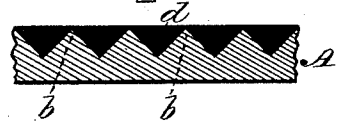


Fig 5



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING DRAWINGS.

SPECIFICATION forming part of Letters Patent No. 353,325, dated November 30, 1886.

Application filed May 22, 1885. Serial No. 166,399. (No model.)

To all whom it may concern:

Be it known that I, CECIL PALMER, of the city, county, and State of New York, have invented a new method or process of making drawings in line or stipple, or both combined, for reproduction by photo-engraving, lithographic, mechanical, or other means, or for other uses or purposes; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a view of a block or piece of plaster or other suitable material having a drawing made thereon in accordance with my invention. Figs. 2 and 3 are enlarged views representing portions of blocks, plates, or bodies having their surfaces prepared with ridges and projections in accordance with my invention. Fig. 4 is a vertical section of the block or body represented in Fig. 2, with a coating of a contrasting color applied to its surface. Fig. 5 is a similar section, showing the grooves completely filled with the contrasting colored substance.

My invention relates to a novel method or process of making drawings for various purposes; and it consists in first preparing a plate, sheet, block, or body made of one or a number of pieces, with a surface composed of a series of ridges or projections, or both combined. These ridges or projections are to be narrow or sharp at the top, increasing in width toward the bottom, the grooves or spaces between the said ridges or projections being narrow or sharp at the bottom, increasing in width toward the top. The plate, sheet, block, or body may be of some suitable white or light-colored material, in which case the grooves or spaces are coated or filled with some suitable black or dark-colored substance; or the plate, sheet, block, or body may be of black or dark-colored material and filled or coated with a white or light-colored substance. If, now, supposing the plate, sheet, block, or body to be white, the surface be scraped or cut away, the ridges or projections will appear as white lines or stipples in black ground, and as the surface is scraped or cut away to a greater depth the lines or stipples will become wider until the surface is scraped or cut away below the bottom of the grooves or spaces filled with black, when the white lines or stipples will become a solid white surface. If the plate, sheet, block, or body be black, the reverse result will be produced. In either of these ways a drawing can be produced in which the shades of color between black and white will be given in lines or stipples.

In carrying my invention into effect I usually take a plate of soft metal—such as type-metal—and rule the same in a ruling-machine, using a V-shaped tool, sharp at the point, thus producing a series of straight parallel V-shaped grooves, sharp at the bottom and of uniform depth, the two sides of a groove being preferably at an angle of ninety degrees to each other, and by regulating the depth and distance apart of these grooves the ridges are made sharp at the top. This metal plate I then use as a mold and produce therefrom a counterpart or cast, A, of plaster-of-paris, wax, or other suitable material, the surface of which is capable of being scraped or cut away with a sharp-edged implement, or in any other suitable manner. This cast or block A is thus prepared with a surface the counterpart of that of the metal plate or mold from which it was produced, and this surface is composed of a series of ridges, *b*, of gradually-increasing width or thickness from top to bottom, and having the intervening grooves or spaces *c*, of gradually-decreasing width or thickness from top to bottom.

When dry, the block, plate, or body A is blacked with a fine quality of ivory-black mixed in water, a sufficient quantity being applied either to merely coat the surface, as seen in Fig. 4, or to fill the grooves *c* and completely cover the tops of the ridges *b*, as seen in Fig. 5. This coating or filling *d*, Figs. 4 and 5, is then allowed to dry, giving a black surface. The artist then takes a suitable knife or other cutting implement and scrapes or cuts away the surface of the block A, giving at first narrow white lines, with wider black lines between, and as the surface is scraped or cut away to a still greater depth the white lines become wider and the black lines narrower, producing lighter and lighter shades of color

until the black lines are entirely scraped or cut away, leaving a pure white surface, as seen at *e*, Fig. 1. By cutting or scraping away the black surface of the block A in a direction across or at an angle to the direction of the ridges *b* with a sharp or pointed tool, a series of white dots can be produced, and when the black lines become narrow they can be white-lined in the same manner. Dots or stipples can also be produced by casting or molding the block or body A with two series of V-shaped grooves running at angles to each other, whereby a series of pyramidal projections, *f*, are produced, as seen in Fig. 3, a surface thus formed and coated or filled with a suitable substance of a contrasting color, when scraped or cut away, presenting to view dots or stipples of constantly-increasing area in proportion as the surface is cut or scraped away to a greater or lesser extent until the projections are entirely removed, when a solid white surface will be left, as before described; and, if desired, a portion or portions of the surface of the block A may be provided with ridges, and another portion or portions with projections, thus combining lines and stipples in one and the same drawing, and instead of making the block, plate, or body A in a single piece, it may, if preferred, be composed of a number of separate pieces secured or held together in any suitable manner.

Details may be added with pen or brush, as in other methods of drawing in black and white lines or stipples.

It is evident that a plate, sheet, block, or body of any suitable material may be provided with a surface having the characteristics above described, and that such surface may be produced by casting in a mold by pressure, or in any other well-known and suitable manner, and that any suitable contrasting colors may be used for the plate, sheet, block, or body and its coating or filling.

Although I have described the ridges or projections of the mold from which the block or body A is produced as formed by cutting a series of V-shaped grooves in its surface, I do not confine myself to such method, as it is evident that these ridges or projections, having the characteristics described, may be produced in any other suitable manner.

From the foregoing it will be seen that lines or stipples, or both combined, of different widths or areas of surface, corresponding to those of an engraving, can be readily produced, for the reason that the relative proportion of surface occupied by the two contrasting colors will vary at different depths, and consequently, as the surface is scraped or cut away more or less, the width of the line or surface area of the stipple will present a corresponding variation, thus enabling the artist to easily and quickly produce the different tones or effects of light and shade over the various portions of the drawing by merely scraping or cutting away the surface of the plate, sheet, block, or body to a greater or lesser extent at the required points.

My invention can be used to great advantage in making drawings for a variety of purposes, and particularly for those to be reproduced by the photo-engraving process, for the following reasons: It is a very rapid, convenient, and agreeable method of drawing. The changes from light to dark can be produced very rapidly or very gradually, and the forms and gradations with the utmost delicacy. The tones can be kept flat by keeping the surface even. Any portion of the drawing can be operated upon, working all up together, or finishing one part at a time. The drawing, when completed, is in line or stipple, or both combined, of pure black and pure white, or other suitable contrasting colors, clean and distinct, yet with all the softness of a crayon or wash drawing. The drawing can be done anywhere and under any conditions, and does not become easily soiled.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The herein-described method or process of making drawings, the same consisting in first preparing a plate, sheet, block, or body composed of one or more pieces, with a surface composed of a series of ridges or projections, or both combined, of gradually-increasing width or thickness from top to bottom, and having the intervening grooves or spaces of gradually-decreasing width or thickness from top to bottom, then coating or filling the surface thus prepared with a pigment or substance of a contrasting color, and finally producing the drawing by scraping or cutting away said surface with a suitable implement to a greater or lesser depth at the required points, whereby lines or stipples of different widths or extent of surface are disclosed to produce various tones or effects of light and shade, substantially as set forth.

2. The herein-described method or process of forming a surface by which to produce a drawing, the same consisting in providing the said surface with a series of ridges or projections, or both combined, of gradually-increasing width or thickness from top to bottom, and having the intervening grooves or spaces of gradually-decreasing width or thickness from top to bottom, and then coating or filling the surface thus prepared with a pigment of a contrasting color, whereby, as the said surface is scraped or cut away to a greater or lesser depth, lines or stipples of varying width or extent of surface will be made to appear and different tones or effects of light and shade be produced, substantially as set forth.

3. A plate, sheet, block, or body composed of one or more pieces, and having a surface composed of a series of ridges or projections, or both combined, of gradually-increasing width or thickness from top to bottom, and

having the intervening grooves or spaces of gradually-decreasing width or thickness from top to bottom, said surface being coated or filled with a pigment or substance of a contrasting color, whereby, as the said surface is scraped or cut away to a greater or lesser depth, lines or stipples of varying widths or extent of surface will be exposed to view to produce different tones or effects of light and shade, substantially as set forth.

Witness my hand this 11th day of May, A. D. 1885.

CECIL PALMER.

In presence of—
F. W. SMYLIE,
ANTHONY LAMB.