

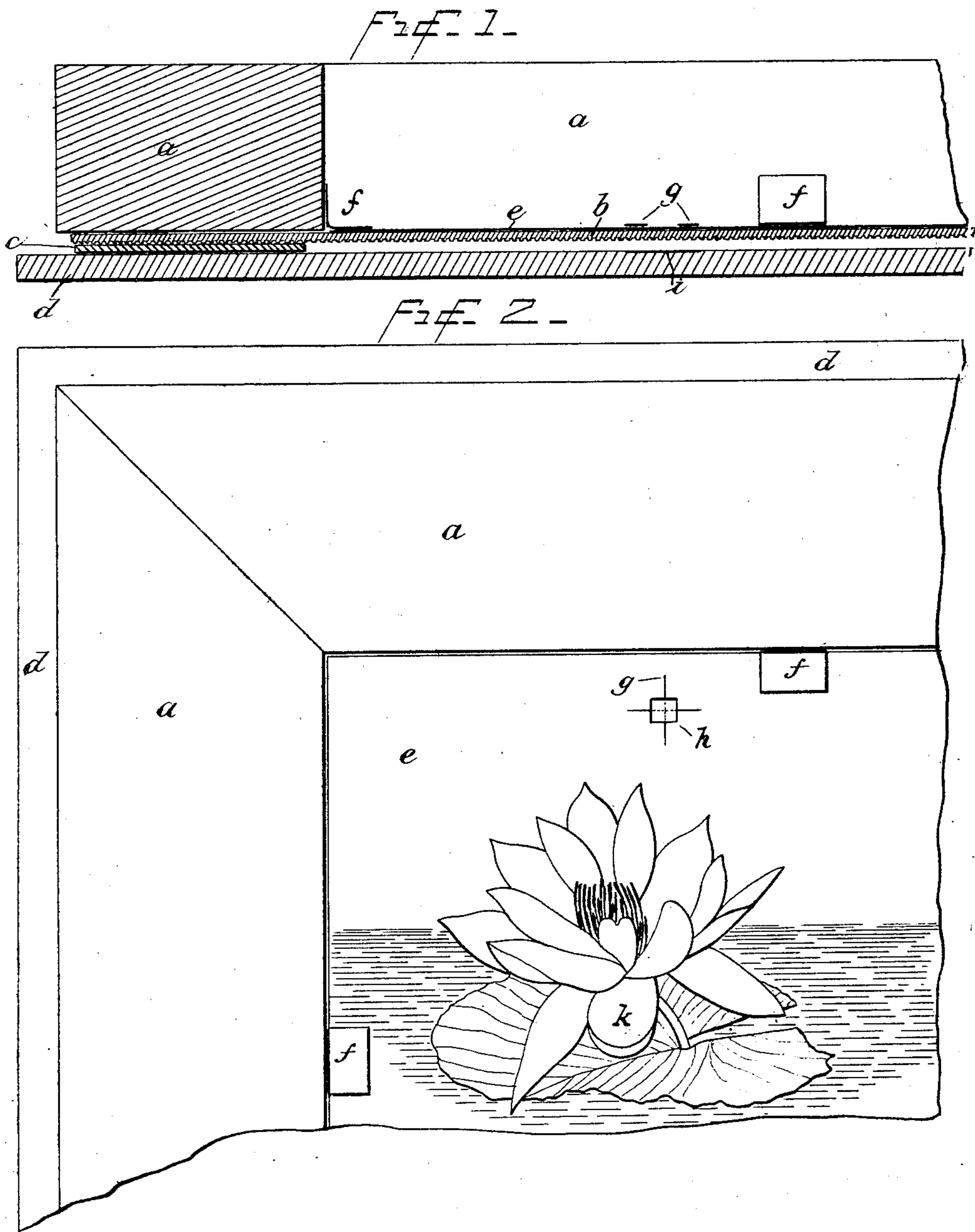
(Specimens.)

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METHOD OF DRAWING AND SHADING PICTURES.

No. 432,994.

Patented July 29, 1890.



Witnesses

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METHOD OF DRAWING AND SHADING PICTURES.

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To all whom it may concern:

Be it known that I, DANIEL FAUSEL, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Method of Drawing and Shading Pictures, of which the following is a specification.

This invention is related to many methods designed to facilitate drawing by the use of mechanical devices, and its special object is to produce with the help of flexible inked surfaces shades and outlines of definite strength and gradation in an improved and perfected manner. As at present used, a flexible transparent shading-surface of the kind referred to is made, essentially, of gelatine with more or less glycerine added to give the composition toughness and elasticity within its mass. A thin sheet of such material is cast or formed upon a matrix, so as to give rise to a grain, ruling, stipple, or other structural design in relief on one of its sides, while the other remains smooth. Such a film, being attached to a light frame and held securely in place by apparatus well understood, which admits of its ready removal and exact replacement, is well adapted for the reproduction with ink on any flat surface of the grain or other structural markings on its face. By taking proper precautions the artist can also locate and confine such reproduction within desired limits and give a certain amount of gradation and expression to pictorial subjects.

The manner in which gelatine films provided with a relief grain, stipple, or like structural surface are now used for drawing is as follows: The thin transparent sheet fast to the face of its frame is adjusted by the help of the aforementioned apparatus holding the latter so as to lie flat upon the surface which is to receive the shading. The face of the film and the surface below it are parallel, but not in contact, the two being a very short distance apart. In almost all cases the surface which is to receive the shading has upon it an outline of the design, which is visible (if it contrasts strongly with the surface it is on) through the gelatine. The frame with its film is now to be removed from the apparatus holding it, and the structural face of the latter is to be rolled up with an adhesive ink like that used for printing or transferring. A small

rubber or composition roller is employed for this purpose. The face of each projecting particle of gelatine by this process receives a covering of tenacious ink, while the spaces between the particles or lines are free of that substance. When the frame and film are restored to the apparatus that holds the latter in position, the outline of the design may still be seen through the gelatine, (if said outline be strong enough,) but with greatly-increased difficulty, in consequence of the interposing ink. If the film be now depressed by means of a polished stylus, suitably formed of agate, steel, or other hard substance, and brought by the pressure so applied upon its back into contact with the surface which is to receive the shading, it will print or offset the ink upon said surface, producing there a grain, stipple, or ruling which corresponds exactly in its structure to the parts of the inked film which have been sufficiently depressed. Furthermore, the intensity of the tint produced is proportional within a certain range to the pressure applied to the back of the film, the maximum depth of shade being obtained when substantially all the ink leaves the gelatine and adheres to the surface below it; but though theoretically conceivable, it is often very difficult to locate definitely in position any desired shade. This is the case because of the difficulty of seeing exactly the details of the design as outlined upon the surface below the film or the value and extent of the work done by pressing on the smooth surface of the film with the stylus. It is also, for the same reason, practically impossible, without special precautions, to graduate a tint in accordance with the requirements of a picture when the outline is faint or contrasts badly with the surface it appears upon, which it very generally does. As films are used at present both these indispensable ends are attained by methods which are slow, cumbersome, and imperfect. As a rule no attempt is made to graduate a tint from light to dark by variations in the amount of pressure imparted by the stylus to the back of the film, the effort being always to produce as even and flat a tint as possible, representing all that the evenly-inked film can give without forcing. Having produced the lightest shade required upon a certain surface in this way,

the exhausted film may be removed, reinked, and replaced with a minute lateral displacement, or a different film properly inked with a different structural design upon it may be made to take the place of the first, and then, by pressing with the stylus on such places as require a greater depth of color, a second, and in like manner a third or fourth, tint may be superimposed upon those that precede it.

By such treatment a good gradation may be had and any depth of color obtained when care is taken to overlap the several flat tints to a proper extent; but, for reasons already stated—namely, the almost insurmountable difficulty of seeing distinctly the outline within which or near which the shadows are to appear after the film is inked—means have to be adopted for circumscribing the extent of each of the successive flat tints or shadings before they are produced by the application of the stylus or similar depressing-tool. This is done by interposing between the under face of the inked film and the surface which is to receive the tint an impenetrable layer, formed to correspond with and cover all those parts of said surface which are not to receive the offset of ink from the relief-grain. When the artist is engaged in drawing upon paper or card-board, this interposed layer may be a sheet of paper cut out like a stencil or templet and made to suit the design, and may be held temporarily in place by drawing-pins or otherwise till the tint has been properly applied. On the other hand, when the artist is working on stone or zinc, his opportunities for controlling the extent to which each tint shall extend are much better. He does not then use paper except for margins, but “gums out” at first, and successively afterward as each flat tint is laid, all those parts which are not to be affected by the offset from the next following film. In both these cases the ink from the structural relief on the gelatine goes over to the paper or dry gum, and of course disappears when such interposed substances are finally removed. By these means and with careful attention to details very excellent effects may be produced, though with the expenditure of much time and labor.

I will now describe the improved method of using flexible transparent films I have invented, which overcomes the difficulties just stated and gives both certainty and agreeable freedom to the work of the artist. By far the greater part of all the work executed with the help of shading-films is done on stone or zinc for the lithographic printer, and, as in that art, the style of drawing under consideration receives its best and fullest development, I will first describe my method from a lithographic point of view, and more particularly for the production of the plates or stones required for colored pictures. For work of this kind it is usual to produce a number of identical offsets from the outline keystone on the several stones or plates which are to receive the necessary tints and other details

for each color. The offset-sheets are impressions on paper from the keystone printed in ink and dusted over with dry red chalk. With the help of such a sheet a faint, inert, and fugitive offset on a stone or plate is produced by transfer in the press, and as the necessary cross-marks for registration are always made upon the keystone, they will also appear in the same relative positions on each of the color-stones. In addition to the offsets so made, the use of which is well understood, I make an extra number on paper which is fitted for drawing on by passing a clean sheet of paper of the requisite quality in contact with the face of an offset-sheet through the press. The offsets so prepared I shall call “paper-offsets on drawing-paper,” and their use will be now explained. Having arranged and adjusted the film chosen for the special kind of shading required, with the frame supporting it, properly and securely over the faint red delineation upon the stone or plate and connected it with the apparatus adapted to grasp and hold it in the well-known way, I proceed to adjust on the film—that is to say, upon its upper smooth surface—a paper-offset of the aforesaid kind so that it shall be in register with the outline which has been offset upon the plate lying under the grain or other structural relief upon the under side of the gelatine. This is done by cutting away in part the cross-marks appearing upon the paper-offsets. Such little holes may be square, and should be only just large enough to let the operator see through them the central portion of each cross-mark on the plate. When the paper-offset has been carefully moved so as to get the upper and lower cross-marks in perfect register, as described, the sheet of paper is made fast by strips of gummed paper or otherwise to the frame bearing the film. The artist, following my method, now knows that the faint delineation before him, and which he can see in all its details, is exactly over an identical delineation below, with reference to which he desires to produce the necessary tints and shadows. He sacrifices (after having got his register) the transparent or translucent character of the film, hitherto of essential importance, by covering up the back of the same with opaque white paper; but he gains in other ways, as will now be seen. The next step is to remove the frame bearing the film from the mechanical appliances which clasp and hold it, and to ink up the face of the grain, stipple, or ruling, as the case may be, with an inking-roller adapted for that purpose in the usual well-known way. During this operation the paper-offset will remain in its place, and when the frame is again returned to its position over the stone or plate the artist's work can commence.

The drawings, which are part of this specification, illustrate in part and on a scale greatly magnified the state of things at this stage in the prosecution of my process.

In Figure 1 all the devices referred to in the foregoing description are shown in cross-section. The letter *a* indicates the frame which carries the film *b*, both being suitably attached by cement or little tacks and a binding-strip of leather or other pliant material *c*, which strip may also be made of such a thickness as to maintain the proper distance between the under side of the film and the surface that is to receive the design. The zinc plate which furnishes that surface in the supposed case is marked *d*, the paper-offset *e*, and the gummed strips that hold it in place *f*. To avoid confusion the paper in section is expressed by a single heavy black line.

In Fig. 2 all those parts are shown in plan, and in addition *h* represents the small hole cut in such a way as to remove the center of the cross-mark *g* in the paper-offset and render visible through the gelatine the center of the cross-mark *i* on the zinc, which is indicated in Fig. 2 by the dotted lines that complete the cross *g*. In Fig. 1 the cross-marks cannot be shown, but their location is suggested by the short lines at *g* and *i*. The offset on the paper *e* is marked *k*. It should be distinct, but feeble in outline.

In the drawings the mechanical devices and apparatus which are used to hold the frame and film securely in place, and which permit of the removal, restoration, and adjustment of the several films employed in the execution of a piece of work, are not shown, as they are well known and understood and do not form a part of my invention or require particular explanation in this statement thereof.

Working in accordance with my method the artist now draws upon the sheet before him, using for that purpose a crayon or soft pencil or any drawing implement that leaves a mark which deepens in intensity in proportion as the pressure is increased with which such marks are made. The crayon in doing this and in producing thereby a visible picture or shadow depresses the film and brings its lower inked surface in contact with the zinc or stone exactly as the stylus does, and may be called in general terms a "marking-stylus." By executing in this way the desired work upon the paper-offset, which is attached to the upper surface of the gelatine film and in proper position and reference to the design thereon, the same will be inevitably reproduced on the surface under it (represented in the grain or stipple of the film) and in proper reference to the offset thereon. To insure the best result it will be readily understood that the hardness of the crayon or pencil should be such that the force necessary to produce the lightest tint on the paper used for the paper-offset should be just sufficient to depress the film and produce an offset of the ink with which the structural face of the film has been rolled up. This being the case a heavier pressure with the crayon will give a more intimate contact of the film with the zinc and cause simultaneously a

black line above upon the paper and a heavier offset of the ink below. I prefer for these and other reasons to use a lithographic crayon as a marking-stylus, which gives a very constant and uniform line, though not a very black one, the relation of which to the work on the surface which is to receive the finished design can be depended on. Crayons of this sort can be had of several different degrees of hardness, and in this respect are designated by numbers; but the pressure required in drawing for my purpose does not solely depend upon the hardness of the crayon, but partly on the nature of the surface on which it is used.

The paper which will be found most serviceable for drawing on, and which I prefer to use for paper-offsets, should not be very thick or have a marked tooth or texture upon its surface calculated to abrade the crayon rapidly and give a soft or granular line. Its marked characteristics should be a white color and sufficient opacity to cover and hide perfectly the dark translucent tint of the film itself and all that is under it. The importance of contrast between each mark produced by the crayon and the surface bearing it is evident, as it enables the artist to form an estimate of his work. The value of the lines he draws, especially when executed with a crayon of the well-known lithographic character upon a rather smooth paper, does not appear except when seen on white paper, and a paper for my purposes cannot be regarded as white if its translucency be such as to cause it to darken perceptibly when lying upon a dark support; hence the necessity for an opaque drawing-paper, as set forth. In this specification, therefore, when "drawing-paper" is spoken of, white paper of the described kind is to be understood.

It is obvious that in prosecuting artistic work the smooth nature of the continuous line or tint made by a crayon or pencil on the paper of the paper-offset will be found to differ distinctly from that of the line or tint of characteristic structure which is produced by the depression of the film; but the relation between the two as to extent and form will remain constant, and the regularities or irregularities imparted to the visible work upon the paper will surely manifest themselves upon the zinc or stone. Under these circumstances, whatever the artist does he sees at once, and in consequence can mentally estimate its appearance as modified by the interposed film. Furthermore, such visible work remains for comparison as he progresses to develop the picture. These facts, in conjunction with the perfect register, enable him to add to, modify in form, or intensify what is already done, and even, in some cases, to supply soft outlines of great pictorial importance, advantages which are quite impossible at present.

As was explained above, stopping out with gum has been hitherto the only reliable way by which to circumscribe definitely the bound-

aries of a tint on stone or zinc. Lithographers working with my process will now perceive immediately that the necessity for stopping out with gum exists no longer, excepting in rare cases, and also that the soft edge of a tint or outline by being drawn positively and in its proper place, instead of up to and upon a hard boundary of gum, is in itself a gain of much importance hitherto unattainable. The absence of the necessity for stopping out with gum or with any device in the form of a stencil or templet is not only an artistic advantage, but also an immense saving in time and trouble by the avoidance of much tedious work, which often costs more than the positive shading on the same plate. An analogous gain may be here pointed out, which consists in the facility my process offers for the removal of ink locally from the face of the film before work is commenced, whereby certain lights are secured in right places and of the proper size and character. This I accomplish by placing under the film a temporary sheet of blank white paper before work is begun upon the stone or plate and then drawing in positively with a crayon (preferably a blue crayon) the luminous points and streaks in the picture which are to remain white. The effect of this treatment of the film is to cause it to carry its ink over from its face to the temporary paper in forms corresponding to the blue drawing. When the work with the black crayon is afterward proceeded with, encroachments upon lights to be left cannot take place, because the grain is denuded of its ink at those places and cannot offset upon the stone.

The securing of brilliant high lights has been hitherto done with the help of gum, and there is nothing in my method to hinder or interfere with the continued use of that substance for stopping out by those who wish it; but few will be found to underrate the great gain which the almost total exemption from the hardness due to gum confers upon pictorial work.

With reference to gradation, it has been said already that to produce by variations in pressure a shadow from one and the same film which passes evenly from light to dark is impossible in practice as the films are now used. The converse of this is true when my invention is employed, for by it every gradation which the film can give theoretically as the result of difference in pressure is practically possible. This is so essentially, because the operator can see what he does and has done. With the stylus the artist may know that in passing over the back of the film so as to produce a line he has pressed heavier at one end than at the other, but how much more effective the pressure was at the heavy end than at the light he cannot tell, nor can he produce another line like the first. Still less can he add to definitely or improve by a second application any line, mark, or

tint he has already made which demands a definite amount of pressure; but when in place of a burnishing he uses a marking stylus in the way I have described, and works with the same upon a fac-simile outline on white paper adapted to receive and show the marks made upon it in quantity and strength proportionate to the pressure employed, then he will find no difficulty in producing at will upon the zinc the whole range of tints which the inked grain upon the film can give by the simple process of drawing such a series directly on the paper.

On relatively broad surfaces there is yet another way in which gradations may be had independently of differences of pressure, but depending for success also on the visible and permanent character of the work done with the crayon on the paper-offset. This consists in working over the surface that is to receive the shade with lines at some little distance apart, which manner of drawing will give corresponding stippled or soft-grained lines on the stone. The nearer such lines are in any part of the shadow the more closely will the tint at that place approach its maximum depth, or the line may be crossed in whole or in part by a series of cross-hatchings, just as in ordinary drawing. Such treatment of a pictorial subject is impossible when the smooth stylus is used, because a series of lines or cross-hatchings cannot be properly placed at uniform or varying distances apart to represent gradation or structure so long as the act of drawing each individual line of the series produces no visible change and leaves no landmark by which to judge of the effect.

In the foregoing description of my process I have confined myself, for the sake of clearness, almost solely to its application to the production of work on lithographic stones or zinc plates; but it may be said to be of even greater importance to the artist who works on paper or card-board. This is referable to the fact that it is only by my method that the precise location of minute details, delicate outlines, and small shadows can be determined. Gumming out as used in lithography is inadmissible on paper, and one must have resort to paper stencils, which can afterward be removed. Such stencils or templets are very troublesome and difficult to cut and apply. Like gum, they also give to the boundaries of the shadows and tints a disagreeable and often intolerable hardness, and their exclusion altogether is a very definite advantage. In working on paper it will often happen that printed paper-offsets are not to be had. In that case an outline tracing of the original must be very carefully made, and from that by hand in the usual way one or more offsets with a carbon or graphite sheet on white paper of the necessary opacity to retain and show the crayon tints and markings efficiently and accurately; or direct carbon offsets, if the original is not valuable,

may be made with the stylus; also, direct tracings on paper opaque enough for the purpose by the employment of very strong transmitted light; and, lastly, photographs of the original will frequently furnish all that can be desired to take the place of the paper-offsets already described.

In carrying out my process with the intention of executing a drawing on stone, metal, or paper, it is not (as at present) absolutely essential that an offset or any other kind of outline should appear upon the surface which is to receive such drawing, although it is generally a great help and convenience; but it is indispensable to have the drawing-paper delineation upon the upper smooth surface of the gelatine film as I have described it. In these cases, lithographic or otherwise, in which the lower offset or outline can be done without, it is in practice almost always necessary to retain the cross-marks for registration. This necessity is accounted for by the fact that few pictures of any merit can be executed with a single film, and as the combination of two or more requires that the outline attached to each be in register with the rest, that condition is most easily established by adjusting each with reference to the cross-marks on the design-surface that is to bear the finished picture.

In preparing plates for chromolithographic work the outline, as well as the cross-marks, is necessary on each plate, because much work is done on such plates by hand, irrespective of that which can be accomplished by the use of the film, and for many other reasons which need not be discussed.

Although in the practical working of my process an outline or offset on white paper above the film is almost invariably desirable or necessary, it is evident that an artist who draws with sufficient certainty and precision, or who wishes to be quite untrammelled, may begin on blank paper and with any drawing implement he pleases—as crayon, pencil, charcoal, stump, or even a brush specially adapted for the purpose—and thereby effect the offset of the ink upon the blank design-surface under the film without affecting the nature of my invention. I do not therefore limit myself to the precise details here given so long as the principles underlying my process and the devices used in prosecuting it are maintained.

Having described my invention, what I claim is—

1. The improvement in the art of drawing and shading pictures, which consists in first laying flat upon and nearly in contact with the surface that is to receive the design a transparent shading-film bearing an inked grain or other structural relief upon its under surface, and an outline delineation upon drawing-paper of the design which is to be drawn and shaded fastened securely upon its upper surface, and then drawing with a crayon

upon the paper bearing said delineation the details and shades which should appear upon the design-surface below the film, substantially as described.

2. The improvement in the art of drawing and shading pictures, which consists in first applying to the surface which is to receive the design a faint outline drawing or fugitive offset of said design, then laying flat thereon and nearly in contact therewith a transparent film provided with a grain or other structural relief upon its under surface, then laying upon the upper surface of said film and attaching securely thereto a fac-simile outline drawing or offset on drawing-paper like that upon the surface that is to receive the design and in register therewith, then inking the structural relief with a tenacious ink, and then drawing with a crayon or other marking-stylus upon the paper bearing the fac-simile of said offset or outline delineation the details and shadows that should appear upon the design-surface below the film arranged to receive the same, substantially as described.

3. The improvement in the art of drawing and shading pictures, which consists in first applying to the design-surface a faint outline drawing or offset of the design, then adjusting and attaching in maintainable register therewith a like outline on drawing-paper to the upper surface of a transparent shading-film, then inking the lower structural surface of the film and placing the same parallel to and nearly in contact with a waste sheet of blank paper, then drawing with a colored crayon positively on the sheet bearing the outline or offset all those portions of the design which represent the high lights therein, then placing the film so locally denuded of ink in position over the design-surface and drawing thereon with a marking-stylus the shaded parts of the picture, substantially as described.

4. The improvement in the art of drawing with inked shading-films, which consists in first placing the same in position with reference to the surface which is to receive the design and then depressing said film to effect the necessary contact with the design-surface by the pressure of a crayon or other marking-stylus applied to a superimposed and attached sheet of paper adapted to receive and display the visible shades made by said marking-stylus thereon, substantially as described.

5. In combination with a shading-film, a sheet of opaque drawing-paper attached to the upper surface of said film and provided with an outline drawing or offset of the design to be produced, substantially as described.

6. In combination with a shading-film, a sheet of opaque drawing-paper attached to the upper surface of said film and provided with an outline drawing or offset of the design to be produced placed in register with a similar outline drawing or offset upon the

surface which is to receive the shaded design, substantially as described.

7. A shading-film of transparent gelatine, in combination with a sheet of drawing-paper fast to its upper surface and with a marking-stylus adapted for the production of a visible delineation on said sheet and of a

simultaneous depression of the film into contact with a design-surface in position under the same, substantially as described.

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