2 Sheets—Sheet 1.

C. I. ANTHONY.

DAGUERREOTYPING.

No. 7,865. Patented Jan. 1, 1851.

Fig. 4.

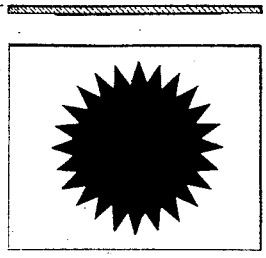


Fig. 3.

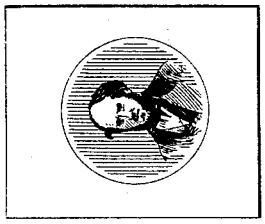


Fig. 2.

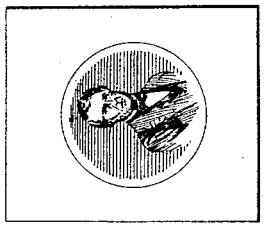


Fig. 1.

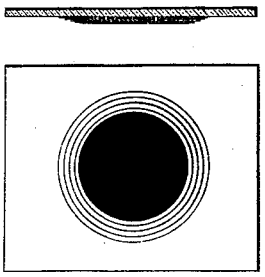


Fig. 10.

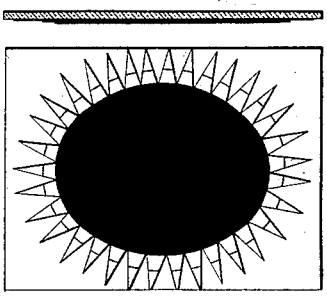


Fig. 9.

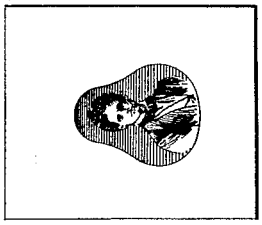


Fig. 8.

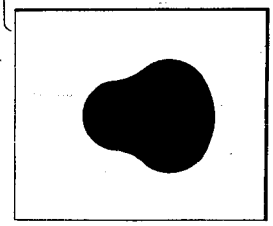


Fig. 16.

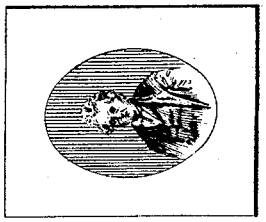


Fig. 15.

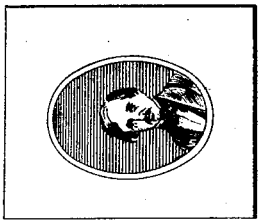
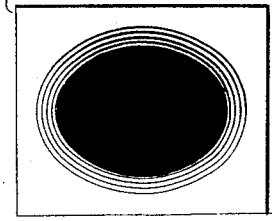


Fig. 14.



Witnesses:

P. B. Sewell

Samuel W. Sewall

Inventor:

Chas. I. Anthony

2 Sheets—Sheet 2.

C. I. ANTHONY.

DAGUERREOTYPING.

No. 7,865. Patented Jan. 1, 1851.

Fig. 5.

Fig. 6.

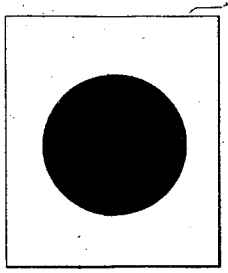


Fig. 7.

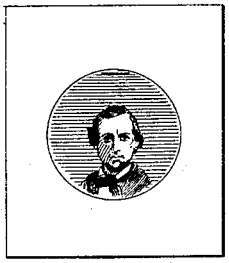


Fig. 11.

Fig. 12.

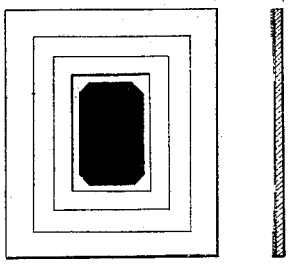


Fig. 13.

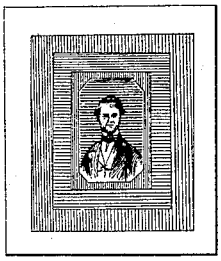


Fig. 17.

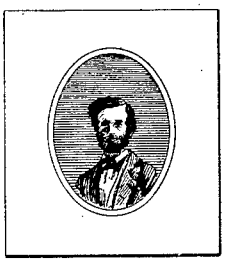


Fig. 18.

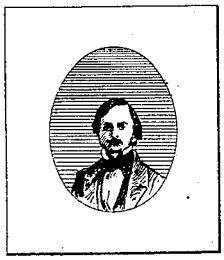


Fig. 19.

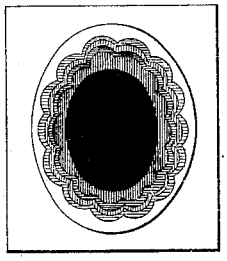
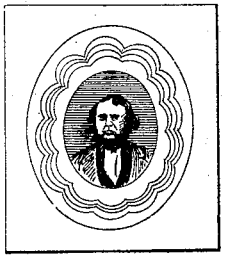


Fig. 20.



Witnesses:

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Samuel H. Gould

Inventor:

Chas. I. Anthony

UNITED STATES PATENT OFFICE.

CHAS. J. ANTHONY, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN DAGUERREOTYPE-PICTURES.

Specification forming part of Letters Patent No. **7,865**, dated January 1, 1851.

To all whom it may concern:

Be it known that I, CHARLES JAMES ANTHONY, of the city of Pittsburg, Allegheny county, in the State of Pennsylvania, daguerreotypist, have discovered or invented and made and applied to use certain new and useful Improvements in the Art of Daguerreotyping, which I designate the "magic process," and which improvements are applicable to all operations in which the agency of light can be employed to produce fac-similes or representations of animate or inanimate objects by acting on chemical substances placed on the surface of metal plates, or on or in any other fit material properly prepared to receive the chemical substance or substances on which it is desired that the light shall operate to produce the intended effect; that the said improvements comprise, first, the application or interposition of transparent or translucent materials between the light passing through the lens of the camera, or between a direct light and the article the light is to operate on, the thickness of such translucent materials being graduated so as to effect the purpose of changing the shade or color or colors of the materials of the parts on which the light operates from a darker to a lighter tint or tints, or color or colors, or the contrary; but in either case with or without a gradation or gradual increase or diminution of the tint or tints given as required; that, in the second place, these improvements consist in the application of semi-transparent or partially-opaque substances between either a direct light or a light reflected from a screen or background and the article or the material to be operated on, for the purpose of producing similar effects in varying degrees and in varying circumstances; and, thirdly, these improvements comprise the application of transparent or semi-transparent and opaque substances in combination, to act in varying degrees and varying circumstances between the light and the articles or materials on which the light is to act, to produce the like effects where either of the first means used separately will not cause the light to produce a required effect; that those inventions, though originally made or discovered by me for use in taking daguerreotype representations of animate or inanimate objects on metal plates sustaining chemical materials, may also be made available in placing, fixing, or tinting ornamental appearances or figures round the representations of any object or objects on or in any other material on or in which chemical substances are placed, when such chemical substances are of a nature to form colors or shades or figures by the operation of light transmitted through the lens of a camera from the object or objects that are to be represented on the material supporting the chemical substances or substance, and, therefore, this invention and the following description thereof are not to be held or taken as limited in the application thereof to the production of representations of animate or inanimate objects on metal plates supporting chemical substances; but my hereinafter-described discovery or invention is to be held and considered as applicable to any purpose in which the agency of light is employed to produce representations of objects of any kind in or on any material wherein or whereon the said discovery or invention can be made useful in producing figures or graduated or shaded tints by acting upon chemical substances on or in the material supporting such chemical substances; and know ye, further, that the said discovery or invention and improvements, and the means of using the same, and the operation and effects thereof are fully and substantially set forth and shown in the following description, and in the drawings annexed to and making part of this my specification of my said discovery or invention and improvements, in which—

Figure 1 is an elevation and section of a plate of glass, which may be either of equal thickness throughout with plain surfaces or be varied in the thickness or form, as may be needful for the especial purpose. On one face of the glass is a patch of dark or entirely opaque material, which in this case may be black paper overlying four thicknesses of semi-transparent material, which in this case may be white paper, the piece of the smallest diameter being next the dark patch, and the next three pieces being successively of larger diameter, and the piece of the largest diameter lying on the glass, the whole being secured on the glass by clear gum-water.

Fig. 2 is a representation of a daguerreotype-picture which, having been taken with a dark background, has been afterward subjected to the operation of light passing through the glass, Fig. 1, during a period of about six or

seven seconds, the effect of which, as seen, is to leave the figure on a dark mass, surrounded by the appearance of light coming from behind, blending with the edges of the dark mass, and gradually increasing toward the outer edge of the single thickness of paper until the outline appears to blend with the blue color produced on the background by the light that has passed through the glass.

Fig. 3 is a representation of a daguerreotype-picture which, after having been taken with a light background, has been subjected to the operation of light passing through the glass, Fig. 1, during a period of about ten seconds, the effect of which, as seen, is to leave the figure in a light mass, surrounded by an appearance of light that increases until the outline blends with the changed color of the background.

Fig. 4 is an elevation and section of a plate of plain glass having a dark patch of paper in the middle, the edges of which are formed as star-like points; and Fig. 5 is a representation of a daguerreotype-picture taken on a dark background, and subjected to the operation of light passing through the glass, Fig. 4, during a period of seven or eight seconds, the effects of which are to leave the figure in a dark mass, surrounded by star-like rays that appear to come from behind and to blend with the dark mass, the edges and points blending with the blue color to which the dark background has been changed by the light passing through the plain glass.

Fig. 6 is an elevation and section of a plain piece of glass with a dark circular patch in the center; and Fig. 7 is a representation of a daguerreotype-picture taken on a light background, and subjected to the operation of light passing through the glass, Fig. 6, during a period of eight to ten seconds, the effects of which leave the figure apparently in a circular blaze of light, the inner edges of which blend with the light background, the outer edges blending with the changed blue color of the background.

Fig. 8 is an elevation and section of a plate of plain glass with a dark pear-shaped patch on the center; and Fig. 9 is a representation of a daguerreotype-picture taken on a dark background, and subjected to the operation of light passing through the glass, Fig. 8, during a period of about ten seconds, the effects, as seen, being to leave the figure in the dark mass of background in the form of the patch, with a fine outline of light that divides the dark background from the pearl-color background produced by the exposure to the light.

Fig. 10 is an elevation and section of a plain plate of glass with a large dark patch surrounded by decreasing thicknesses of semi-opaque material formed in star-like points; and Fig. 11 is a representation of a daguerreotype-picture taken on a dark background, and subjected to the operation of light passing through the glass, Fig. 10, during a period of ten or twelve seconds, the effects, as seen, being to leave the figure in the dark mass of background with the appearance of light acting from behind in the form of star-like varicolored rays, blending with each other and with the edges of the dark mass, and, finally, with the light-blue color formed by the exposure toward the edges of the picture.

Fig. 12 is an elevation and section of a plate of glass having a dark square patch with the corners taken off in the center, and a small parallel space of uncovered glass outside of the patch; next this are successively one, two, and three thicknesses of semi-opaque material, forming three parallel steps toward each edge of the glass; and Fig. 13 is a representation of a daguerreotype-piecture taken on a dark ground and subjected to the operation of light passing through the glass, Fig. 12, during a period of about ten seconds, the effects, as seen, being that the figure is left in the dark mass surrounded by a clean outline of pearl-color, the inner edges of which blend with the dark background; next this is a blue ground with clean outline; next this a paler blue, appearing as if overlaid by a pale drab color; next this a darker drab, and toward the edge a lighter tint of drab color, all formed at the same time by the exposure to the light, and divided by distinct outlines.

Fig. 14 is an elevation and section of a plate of glass with one thickness of semi-opaque material all over it, and within the edges four thicknesses of similar material, each successively less in diameter than the precedent thickness, and in the least or smallest a piece of dark material smaller still, forming five steps of thicknesses.

Fig. 15 is a representation of a daguerrotype-picture as it came from the mercury, and shows the figure in an ordinary dark-drab background, with the appearance of a halo of light from behind, blending both with the background and with the pearl-color remainder surface of the plate, all produced by exposure during fifteen seconds to light coming through the plate, Fig. 14.

Fig. 16 is a representation of a daguerreotype-picture having a white background exposed during five seconds to light coming through the plate, Fig. 14. In this the halo is only enough to make a blending with the original background and the paler white produced on the remainder surface of the plate.

Fig. 17 represents a daguerrotype-picture taken in precisely the same manner as the picture in Fig. 15, and after exposure to the light tinted with a solution of cupreous cyanide of copper.

Fig. 18 represents a daguerrotype-picture taken in precisely the same manner as the picture in Fig. 17, and after exposure to the light tinted by a galvanic battery with a solution of auri-cyanide or cyanide of gold.

Fig. 19 is an elevation of a plate of glass with an oval patch in the middle, made of white paper, over which a dark patch is laid, and on the white patch irregular clouds of

dark color are put on with successive thicknesses or washes of ink, each gradation darkening toward the black patch on the white paper.

Fig. 20 represents a picture taken on a dark background and subjected to the operation of light passing through the glass, Fig. 19, during ten seconds. The dark mass of background remains round the figure with a clean outline, surrounded by darker and lighter cloudings that assume differing tints according to the varying angles at which the picture is presented to the light on inspection. These cloudings terminate at a defined and clear outline between them, and the blue color to which the remainder surface of the plate has been changed by the light coming through the glass only.

In the application of this process it is to be understood that I do not claim the copying of any figures or sets of figures or objects through the action of light by reversing them upon another surface in the manner of what is known as the "talbotype," my process being distinct from that as may be proved by taking a talbotype-picture and applying my process to that picture, so as to produce the like appearances between the picture and the background, and also to change the color of the background.

It is to be understood that in the whole of the figures before described the glass acts principally as a tool to hold the parts placed thereon, and that these plates of glass may be varied by making them with either concave or convex faces, or with one convex face and one concave face; that these faces may be made to act either toward or from the picture; that the glass in use and materials on it may be slid into the camera between the reflected light and the newly-formed picture, which will generally be the best mode, or may be used out of the camera between the picture and the direct light, and that, though the time specified in each case is a mean average time for the glass and parts to perform what is hereinbefore termed the "magic process," the time during which they remain in front of the picture must and will vary with the condition of the atmosphere, or the increment of light above, or decrement of light below, an average intensity; and, further, that the amount of time must partly be governed by the extent of effect it is desired to produce in or on any given picture or substance, because different lengths of time will not only cause greater changes of the colors, but increase the variety of the colors also.

In the foregoing description the materials other than glass are classed, first, as semi-transparent or partially opaque, and as dark materials. For these several purposes white or colored paper of different thicknesses, plain or colored plates of mica, plain or colored plates of horn, plain, or colored, or tinted, or ground glass in plates of varying thicknesses or glass painted with bright, or opaque, or dark colors in flowers, clouds, or other ornamental devices, or any other materials that will partially transmit light in the manner required, may all be used as required; and the glass plates, when used as a tool to carry the parts round or through which the light is to operate, may have a pin through the center on which the other parts shall revolve while the light is acting through or around them, to blend the colors as the light acts upon or through them; and in the case of Figs. 12 and 13 the semi-opaque material may be as described and represented, or the increase of thickness may be inverted by placing them toward the center, in which mode the appearance of the parts will be reversed with the blue color near the edge of the plate. The dark and entirely opaque materials may be formed of black paper, thin pasteboard, or any other materials through which light will not pass to injure the figure in the picture, and all these substances operating between the light and the picture may be placed without any reference to the center of the picture, and be made to act in any desired position with reference to that or any other particular point or portion of a picture, by placing the means hereinbefore described accordingly; and it is additionally to be understood that it is not intended to limit the application of these improvements to pictures taken by the daguerreotype process in a camera, but to apply and employ them in all operations wherein they can be used to direct or manipulate the action of light upon chemical substances, by varying the intensity of the light to produce effects substantially similar to those described and shown, without reference to the chemical substances employed, or the materials or matter that the chemical substance is supported by or combined with.

Having thus set forth and shown the commencing, consecutive, and conjoined operations of my invention and improvements, and described the best means I now know of for carrying the same into effect, I, finally, do not confine or limit myself to any or all of the particular means or manner of using these means to produce the effects described and shown, but intend to apply and employ this invention or discovery, by these or any equivalent means that shall cause light to act unequally or variably on different portions of chemical materials, so as to substitute the appearance of a graduated or tinted increase or decrease of light employed in place of the ordinary mirror-like glare caused by all former processes in the ordinary background of daguerrotype representations, which mirror-like glare is detrimental to the picture, because offensive to the eye, the substituted graduations, on the contrary, throwing up the representations in the picture in a manner more agreeable to the eye.

What I claim as new and of my own invention, and desire to secure by Letters Patent of the United States, is—

The application of transparent or translucent materials of varying thicknesses and forms, separately or in combination with each other, and the application of substances or materials more or less opaque, either separately or in combination with transparent or translucent materials, both or either, when such applications and combinations are separately, consecutively, or conjointly employed for the purpose of manipulating the action of light on chemical substances, substantially in the manner and with similar effects to those described and shown.

In witness whereof I have hereunto signed my name, in the city of New York, this 22d day of July, in the year 1850.

CHARLES J. ANTHONY.

Witnesses:

LEMUEL W. SERRELL,

E. S. BAGLEY.