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PATENTED JUNE 5, 1906.

A. & L. LUMIÈRE.
PHOTOGRAPHIC PLATE FOR COLOR PHOTOGRAPHY.
APPLICATION FILED NOV. 22, 1904.

FIG. 1

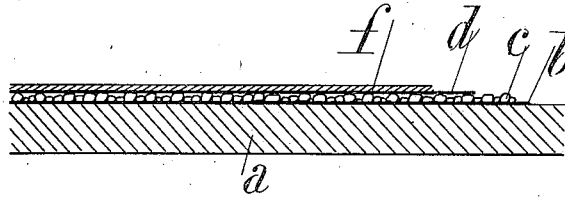
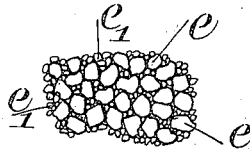


FIG. 2



Witnesses

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PHOTOGRAPHIC PLATE FOR COLOR PHOTOGRAPHY.

No. 822,532.

Specification of Letters Patent.

Patented June 5, 1906.

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To all whom it may concern:

Be it known that we, AUGUSTE LUMIÈRE and LOUIS LUMIÈRE, citizens of France, residing at Lyon-Monplaisir, Rhône, France, have invented new and useful Improvements in Photographic Plates for Color Photography, of which the following is a specification.

The present invention has for its object the preparation of sensitive plates giving colored pictures by means of simple manipulations analogous to those which are practically effected in ordinary photography in black. These plates are characterized by the interposition between the sensitive coating and the glass which serves as its support of a screen-coating formed of colored particles prepared in the following manner: The colored particles are grains of starch, ferments, leavens, bacilli, pulverized enamels, or other pulverulent and transparent materials. They are colored by means of colors also transparent in orange, green, and violet, or else in red, yellow, and blue, or even in any number of colors, such that the grains of these different colors being mixed as intimately as possible in the state of dry powder and in suitable proportions and then applied to the glass they do not communicate to the surface of the plate any appreciable coloration. These colored particles may be employed in various manners.

The accompanying drawings, considerably enlarged, represent one of them by way of example.

Figure 1 shows in section a sensitive plate prepared by one of these means. Fig. 2 shows in plan the arrangement of the colored particles.

The arrangement shown is obtained with particles colored in orange, green, and violet and mixed in convenient proportion so as to offer no sensible coloration.

On one face of a plate of glass *a* is spread a coating *b* of transparent pitchy matter, upon which is applied the mixture of colored particles, which is brushed in such a manner that the grains which remain fixed thereon touch each other without being superposed and form a layer *c* as uniform and as continuous as possible. To obtain as much as possible this continuity, the operation is commenced by sprinkling the plate with relatively large particles *e e*, Fig. 2. Then when

this operation is terminated a second sprinkling will be effected with smaller particles *e' e'* of like color to the preceding, which will lodge in their interstices. Then, if required, the spaces which may still exist can be filled by a last sprinkling with a black powder. This filling up may, however, be completely executed with black powder or with colored particles. The whole is then covered with a transparent varnish *d*, which, as also the pitchy matter which retains the grains, should have an index of refraction as near as possible to that of the colored particles in order that the light may pass through the screen-coating without being diffused. The screen-coating thus obtained is composed of a large number of small elements of different colors, which are distributed more regularly in proportion as the mixture of the colored grains is better effected. Above this coating the sensitive panchromatic coating *f* is spread by known means, and the plate thus obtained can be preserved as an ordinary plate until the moment of use. When one of these plates is exposed, the back turned toward the object-glass, the luminous rays traverse the screen-coating before reaching the sensitive coating. It will be understood that a ray of any color cannot traverse the screen-coating except in the parts of like color and that it will be more or less arrested by the particles which do not contain this color or which contain only a part of it. Thus an impression will be made upon every point of the sensitive layer *f*, the intensity of which will depend upon the composition of the pencil of rays which forms the picture in this point and upon the color of the particles through which it passes in the same point—that is to say, the impression made upon the sensitive layer will have the maximum intensity in those points where the pencil of rays has the same color like the particle through which it passes, a weaker impression being made in those points where the pencil of rays and the particles have only in part the same color, while no impression whatever will be made in those points where the pencil of rays and the particles have no common color at all. After development and fixing the silver reduced in the sensitive coating will mask to different degrees the colored elements of the screen-coating and in such manner that in viewing the plate by transmitted

light these elements will form a picture the colors of which will be complementary to those of the light which they have received during the exposure.

5 To restore the normal order, it will suffice to invert the negative by any of the known methods, such as treatment with the permanganate or the bichromate of potash acidulated, &c., followed by a second develop-
10 ment.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

15 A sensitive photographic plate for color photography comprising a transparent back-

ing plate or support, a layer of colored particles suitably held on said plate and composed of larger particles with smaller particles lying in the interstices between the larger particles, a layer of varnish covering the particles and a sensitive layer supported over said layer of varnish, substantially as described. 20

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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LOUIS LUMIÈRE.

Witnesses:

THOS. N. BROWNE,
GASTON JEANNIAUX.