C. L. A. BRASSEUR.

POLYCHROME SCREEN AND PROCESS FOR MAKING SAME.

APPLICATION FILED OCT. 4, 1907.

976,118. Patented Nov. 15, 1910.

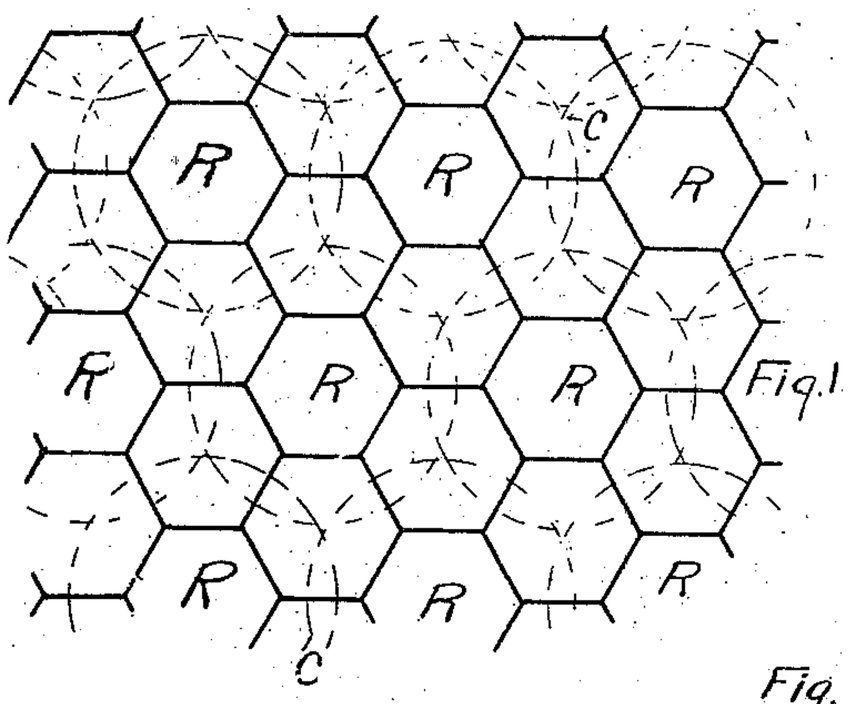


Fig. 1

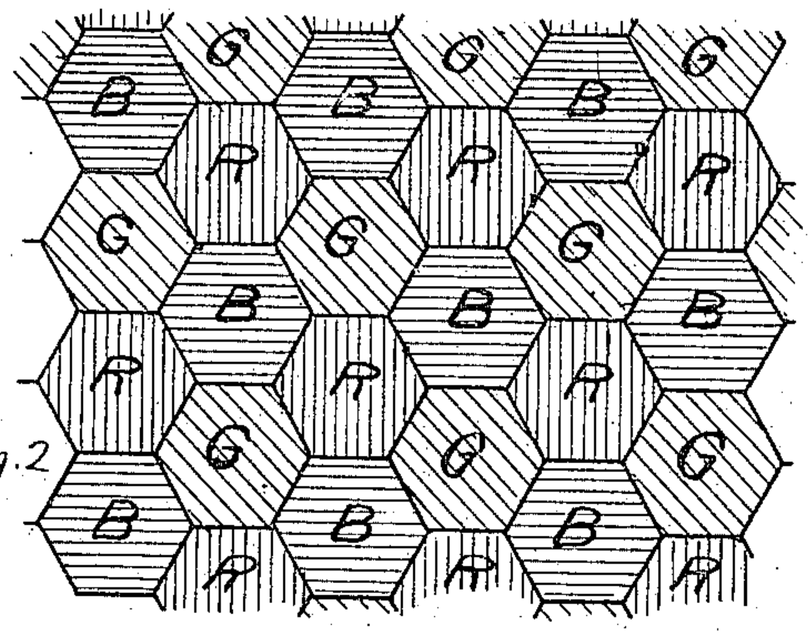


Fig. 2

Fig. 3.

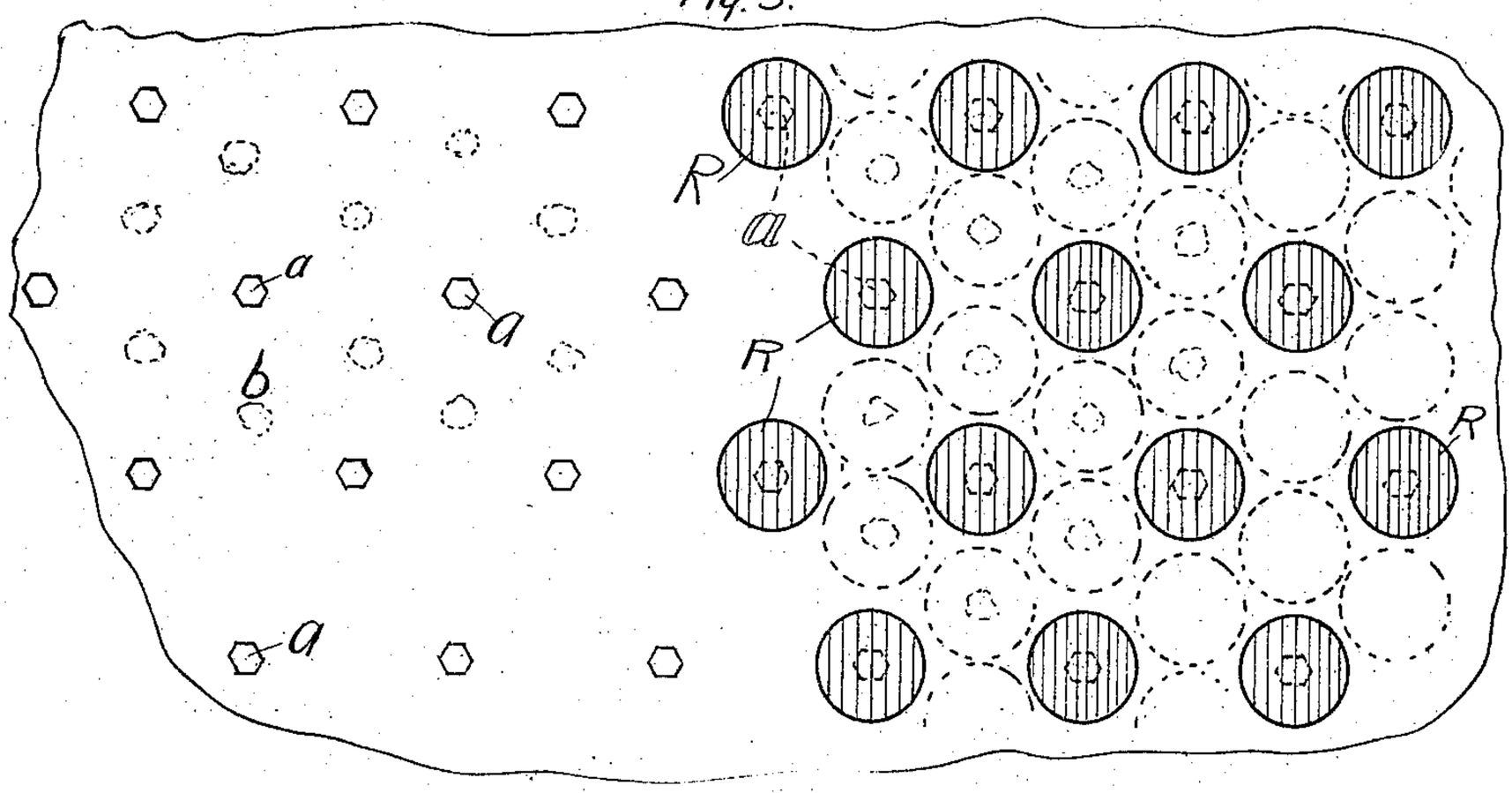
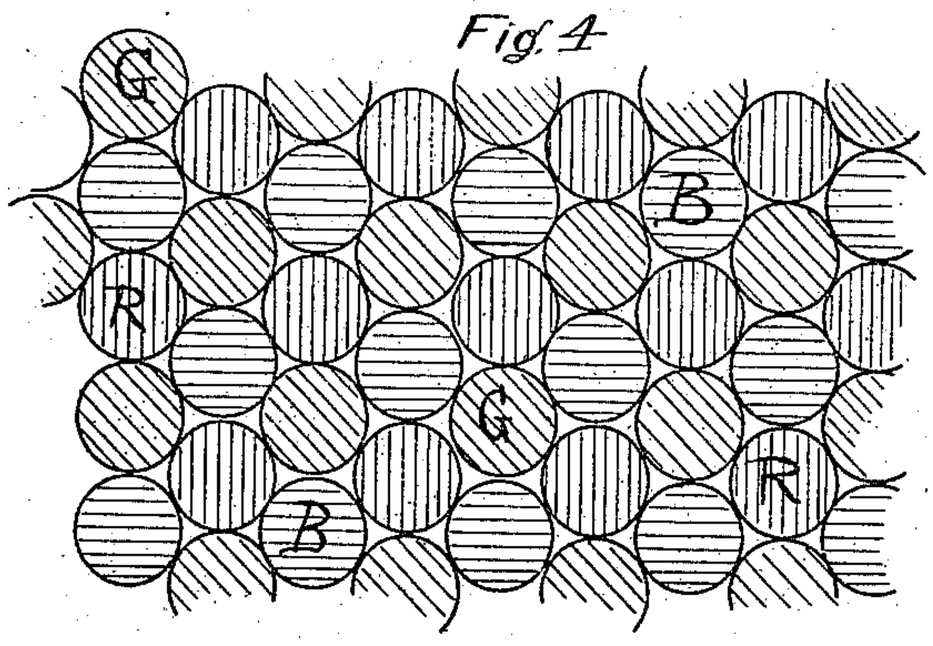


Fig. 4



Witnesses:
R. Cunningham
Hug. Mock

Chas. L. A. Brasseur,
Inventor,
By his Attorney Robt. Barkley

UNITED STATES PATENT OFFICE

CHARLES L. A. BRASSEUR, OF NEW YORK, N. Y.

POLYCHROME SCREEN AND PROCESS FOR MAKING SAME.

976,118. Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed October 4, 1907. Serial No. 395,833.

To all whom it may concern:

Be it known that I, CHARLES L. A. BRASSEUR, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented a certain new and useful Improvement in Polychrome Screens and Processes for Making the Same, of which the following is a specification.

This invention relates to partycolored or polychrome screens for use in color photography and to a process for making the same, the primary object of the invention being to produce a grained screen having the grains of one color distributed thereon in a regular manner.

Another object is to obtain substantial regularity in the distribution of the differently colored grains over the surface of the screen.

Other objects will appear hereinafter.

In my French Patent Number 364,132, dated March 1, 1906, is indicated a method whereby photographs in natural colors, or in colors seeming such to the eye, may be obtained with one exposure and one development from negatives made on ruled or grained polychrome screens. In order to carry out this method successfully, it is necessary that the pattern on both the negative and the positive screens, plate or film be either symmetrically distributed in colors regularly recurrent, as is the case with the ruled screens made by the method indicated in my United States application for patent filed October 4, 1904, Serial Number 227,100, or, in the case of grained screens, that the mixture of the grains be so thorough that the colored grains will be distributed in groups of three colors. In addition to this, it is necessary that the pattern of the screen, whether grain, line, square, hexagon, or other geometrical figure, be of such a fineness that the blur resulting either from the motion of the plates while copying, or from the diffusion of light purposely introduced in lieu of that motion, shall be so slight as not to interfere with the sharpness deemed necessary in a good photograph. The reason for this diffusion of the light is given in the above-named French patent.

In my United States application Serial Number 391,964, filed on or about September 9, 1907, I indicate how the grained screens may be made by cutting up fine filaments of plastic material and then converting these minute cylinders or prisms into spheres by rolling them between plates, and also how these spheres can be used in making partycolored screens. If, when using these methods, the grains have been thoroughly mixed, the resulting screen will have the grains distributed thereon in so nearly a symmetrical arrangement as to meet all the requirements of the copying method. But this thoroughness of mixing is not possible with all grains, as some, by such handling, tend to break up into smaller particles, in which case symmetry is difficult to obtain.

In order to obtain a sufficiently symmetrical distribution under industrial conditions, and thus to avoid losses of great quantities of screens owing to defective symmetry, the following method has been devised or invented, to wit: I take a sheet of paper or some other suitable support *b* which is coated with gum or other adhesive material which has been allowed to dry or harden, and print upon it from a copper plate or otherwise a series of points *a*. These points *a* are the centers of the spaces which the spheres of one color would occupy were all the spheres symmetrically distributed in a regularly recurrent series of colors. The printing is done with a substance which will render the dots or points *a* adhesive, and while these dots are yet in this tacky condition, I dust on the support spheres of one of the colors which are used on the screen, as the red, for example. It is preferred that these spheres, which are marked R in Figure 3, should be of slightly smaller diameter than the spaces they are intended to fill in the finished screen in order to allow the second operation to be more readily performed. After such dusting and after allowing the adhesive dots to dry or harden, the surplus spheres are allowed to roll off the support. The support *b* is then placed on a suitable flat board or other support and spheres of the other two colors, thoroughly mixed together, are allowed to run in and fill in the intervening spaces. The paper is then rendered adhesive by means of whatever agent, such as steam, heat, or other, will soften the gum or other material employed. By this treatment, all the spheres in contact with the paper or support *b* are made to adhere thereto. The paper is again allowed to dry or the adhesive to harden, and the surplus spheres

are made to drop off the same. The spheres are next transferred to glass or to a celluloid film or other support by means of heat and pressure, the paper is removed by dissolving the adhesive material, and the surface is finished by means of heat and pressure; or, if necessary, it can be sprayed over with thin celluloid and then be polished by the means usually employed in the celluloid industry. If necessary, the paper covered with spheres can, before transferring, be pressed between hot plates in order to first flatten the under side of the spheres. Or it may be treated in any of the ways described in my aforesaid application of September 9, 1907.

The result in all cases is a patterned screen on glass, film, or other support, the peculiarity of which is that the grains of one color are symmetrically distributed while the others, of one or more colors, are distributed with sufficient symmetry to answer all the needs of the case.

Instead of using a copper plate to print the dots *a*, use may be made of photography in locating said dots on the paper or support *b*. Thus, a glass plate can be coated with varnish which is then allowed to dry; on this a layer of sensitive albumen is spread (albumen and potassium bichromate). When dry, this is printed under a subdivided negative. The plate is then rolled over with an adhesive material nonsoluble in water, and is then soaked in water which will remove all the soluble albumen, leaving only albumen dots coated with adhesive matter. Spheres of one color are then dusted on this, and a mixture of the other colors is made to fill the spaces left. The plate is then finished as in the first case described.

While it is possible to print other series of adhesive dots after the first colored spheres are located, and thus to locate the second and even the third series of colored spheres (which are not mixed together in such event), recourse to this costly expedient need only be had when absolute perfection is demanded.

The printed pattern on which the spheres or particles of other form or desired shape, are to adhere can be varied, of course, from the hexagonal arrangement shown in Fig. 3. Thus, it can be printed so as to locate the spheres in parallel lines, and, in the case of black and white screens, it must be printed so as to evenly distribute the black and white spaces.

In the drawing, Fig. 1 represents a polychrome screen and the distribution of light (red, in the instance illustrated) when printing, the dotted circles *c* indicating that the whole surface is acted upon, though the red light only goes through the red dots R, so that, even if there is a symmetrical distribution, all red dots will receive the red light transmitted through the negative screen; Fig. 2 represents, on an enlarged scale, the appearance of a grain screen in the "viewing" or positive colors, red (R), green (G) and blue-violet (B), wherein there is symmetrical distribution of colors; Fig. 3 is a fragmentary view showing a paper or other support *b* having a series of adhesive dots *a* thereon, and showing red spheres R as adhering to sundry of said dots, and indicating, by the dotted circles, where the spheres of the other two colors will fall, with more or less symmetrical distribution; and Fig. 4 represents an ideal distribution of the spheres previous to their flattening.

Or I may print a series of tacky dots on a permanent or temporary support, cover the same with spheres of one color, thereafter remove the surplus spheres, print in another series of tacky dots, cover the support with a second pot of similarly colored spheres, remove the surplus spheres, and then print in a third series of tacky dots, cover with the third lot of colored spheres, remove the surplus, and finish as above described by flattening out the grains or spheres.

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

1. The method, substantially as hereinbefore set forth, of making polychrome screens for color photography, consisting in providing a support with tacky areas, dusting colored grains thereon and, when dry or hard, removing the surplus grains, then rendering the surface tacky, and dusting other colored grains thereon, and thereafter removing the surplus grains.

2. A polychrome screen for color photography consisting of a support, grains of one color arranged thereon in symmetrical disposition, and other grains intermingled in the spaces between said symmetrically arranged grains.

3. The method, substantially as hereinbefore set forth, of making polychrome screens for color photography, consisting in printing a series of tacky dots on a support, covering the same with grains of one color, and removing the surplus or unattached grains, and in repeating the process for each set of grains to be added thereafter.

Signed at New York city in the county of New York and State of New York this third day of October A. D. 1907.

CHARLES L. A. BRASSEUR.

Witnesses:

HUGO MOCK,

R. W. BARKLEY.