

No. 887,845.

PATENTED MAY 19, 1908.

H. L. RECKARD.
PROCESS OF PHOTOGRAPHY.
APPLICATION FILED JAN. 16, 1907.

Fig. 1.

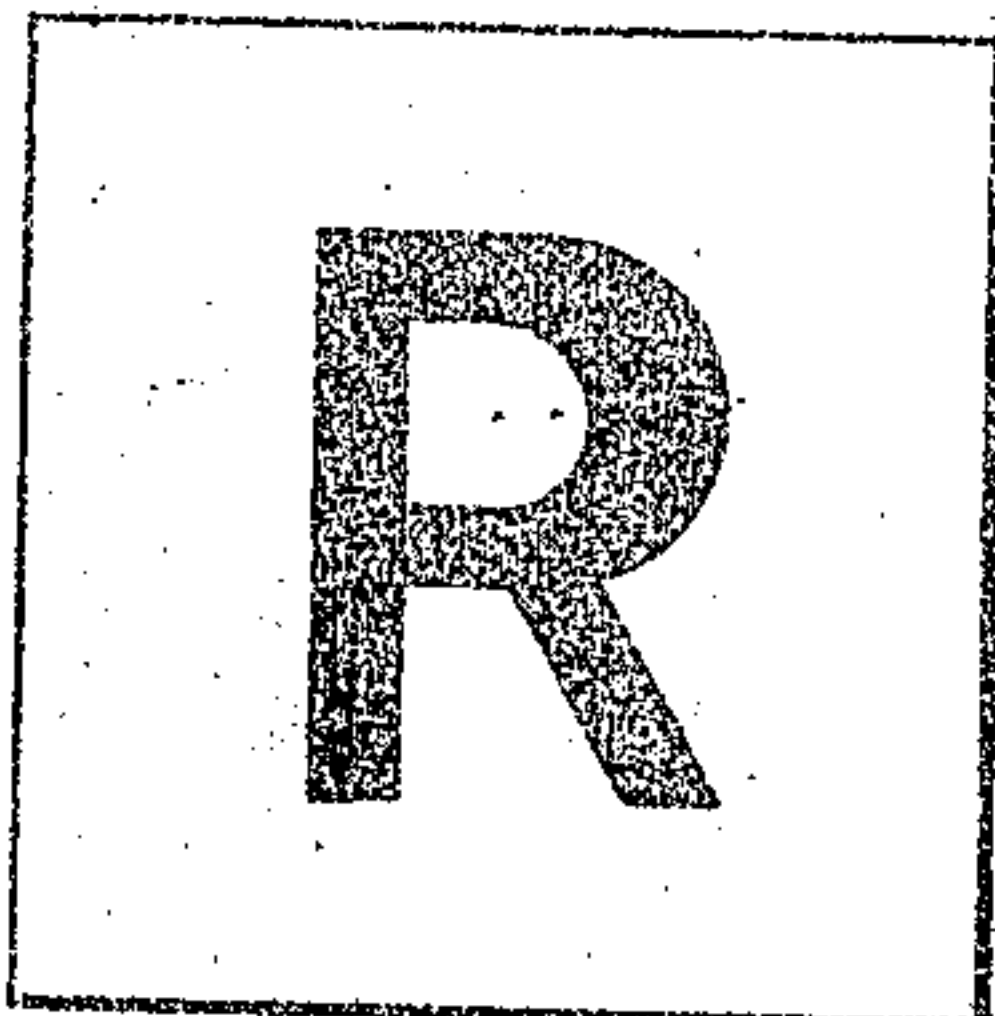


Fig. 2.

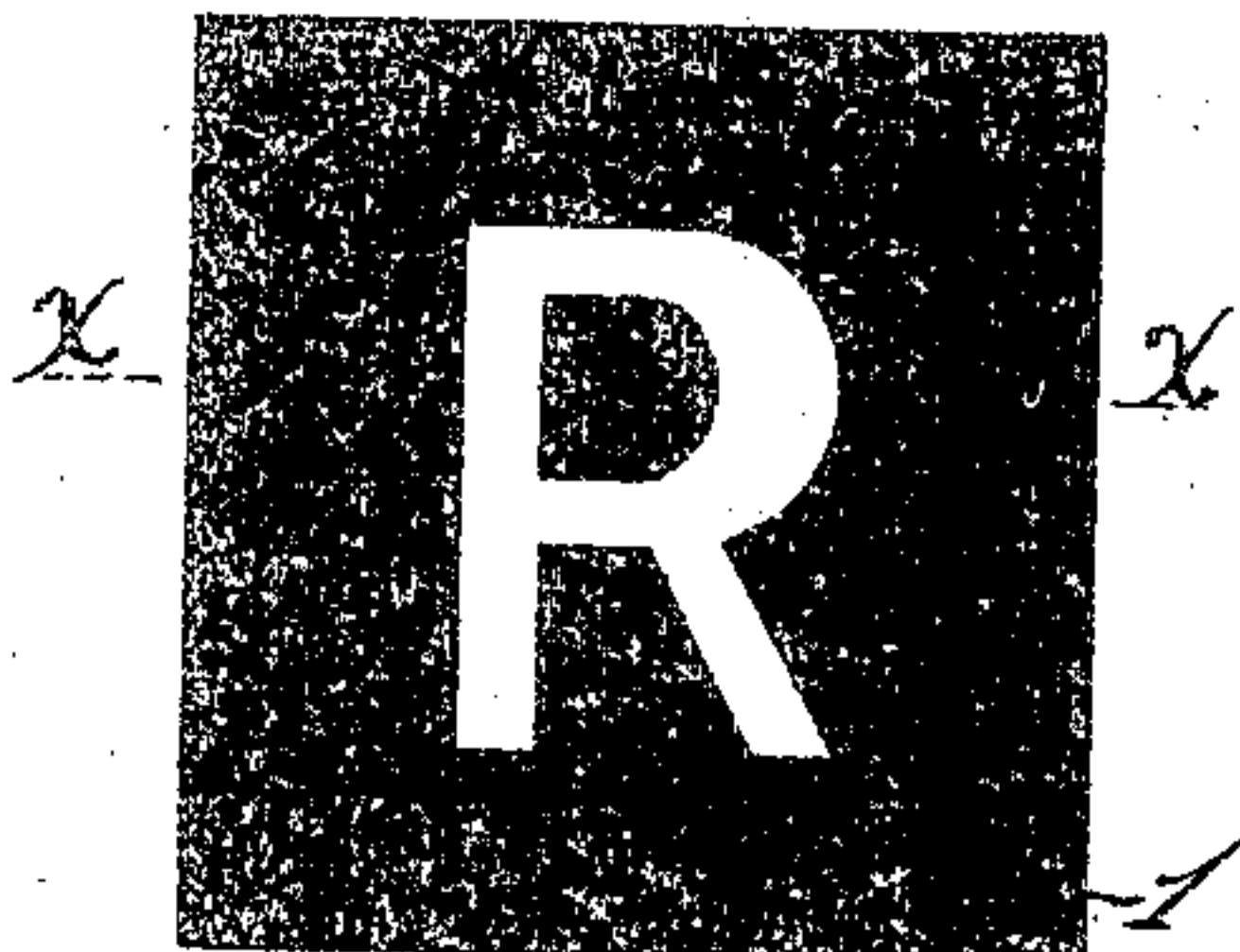


Fig. 3.

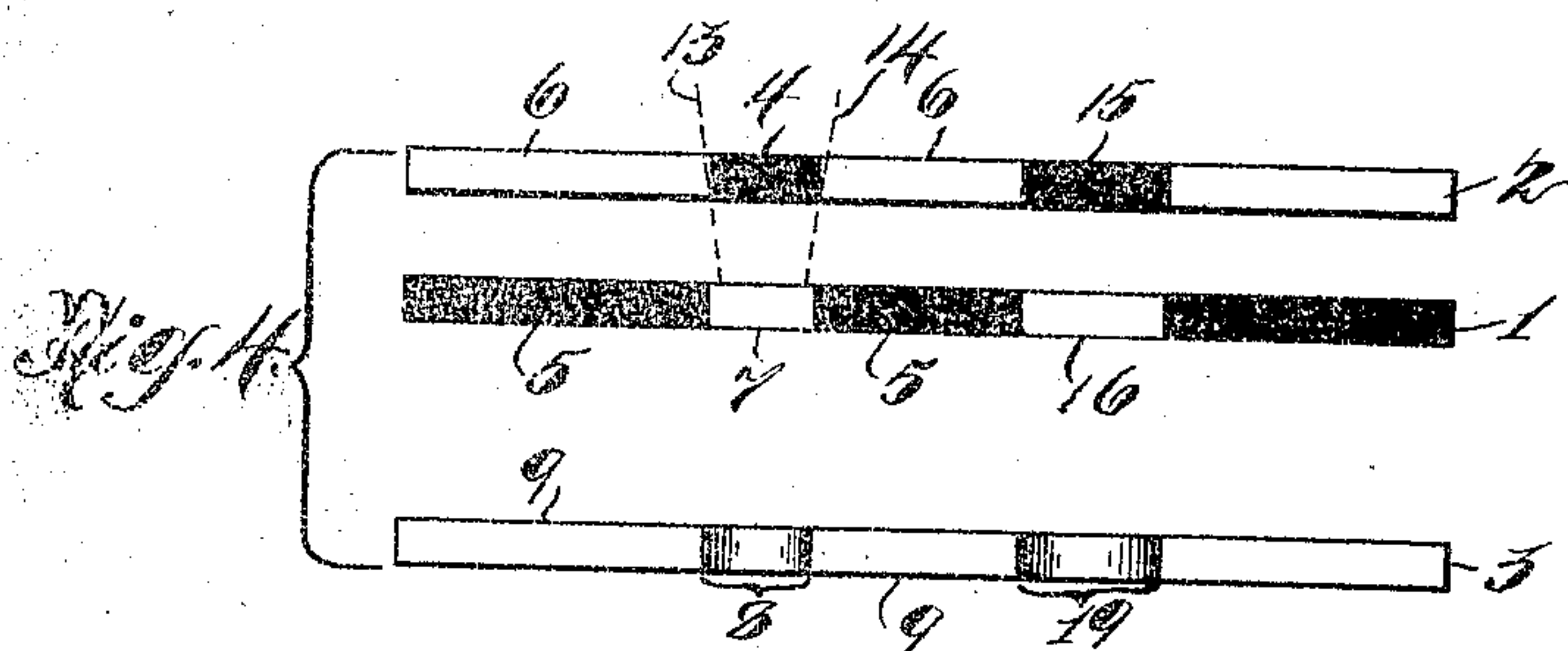
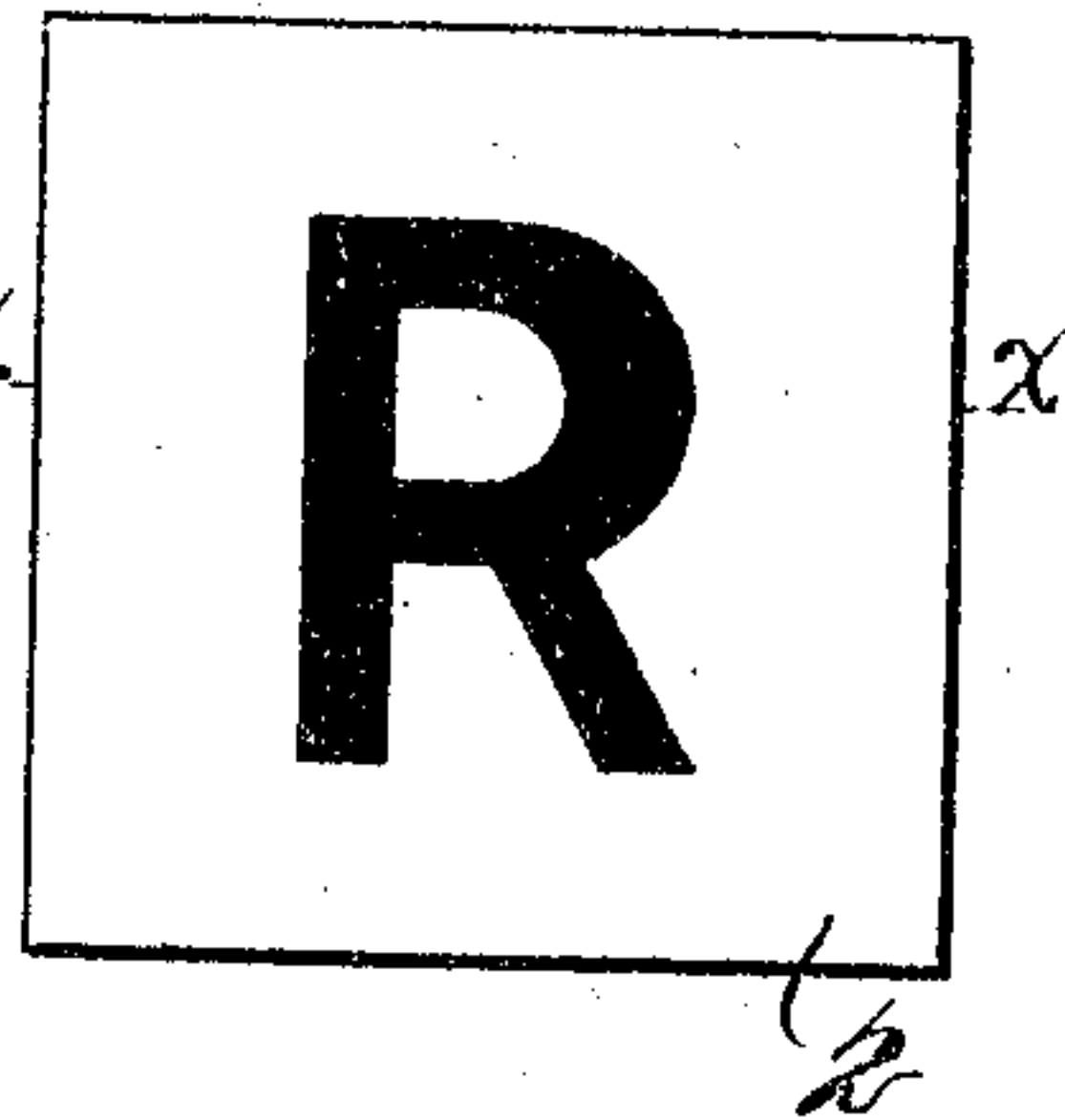
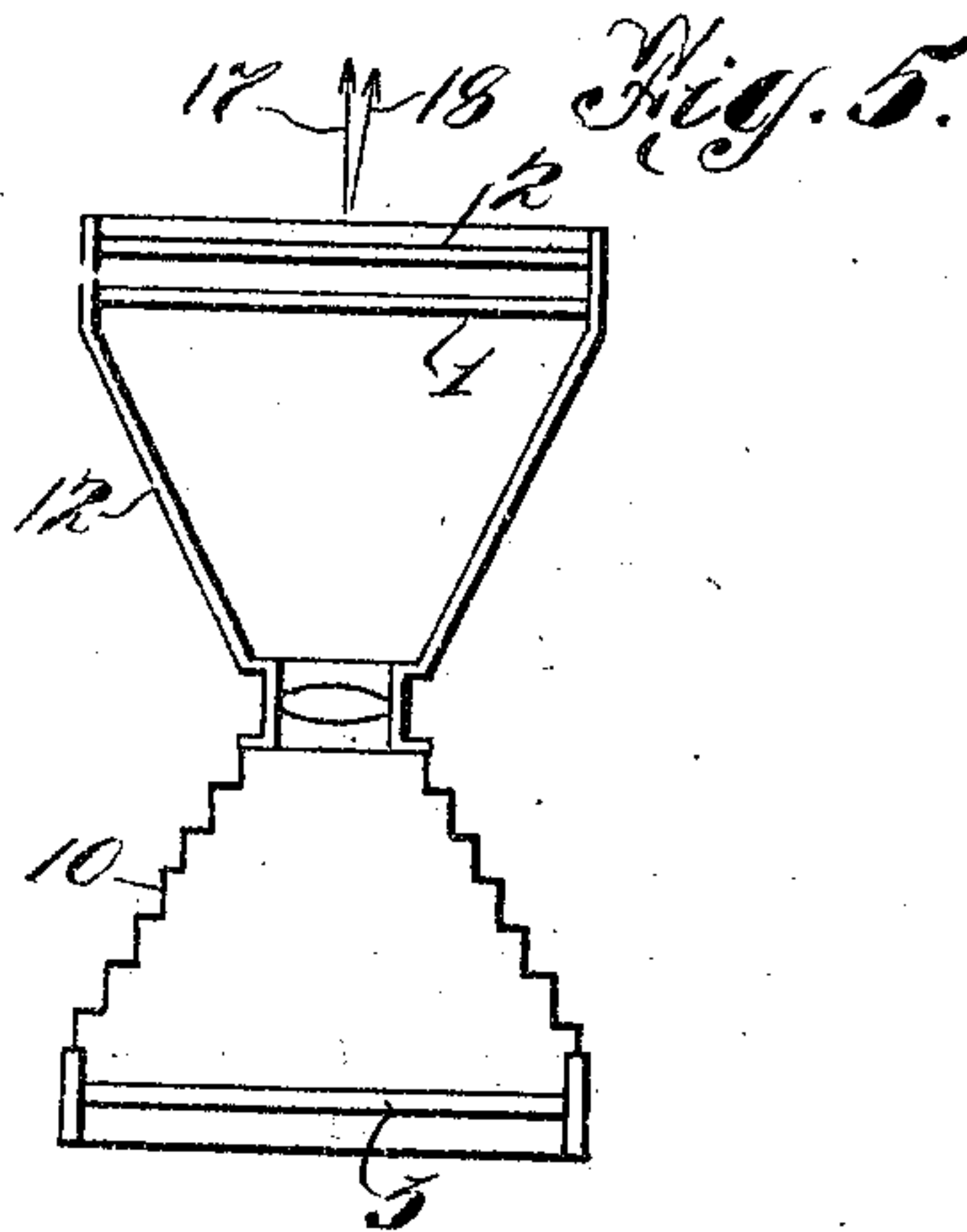
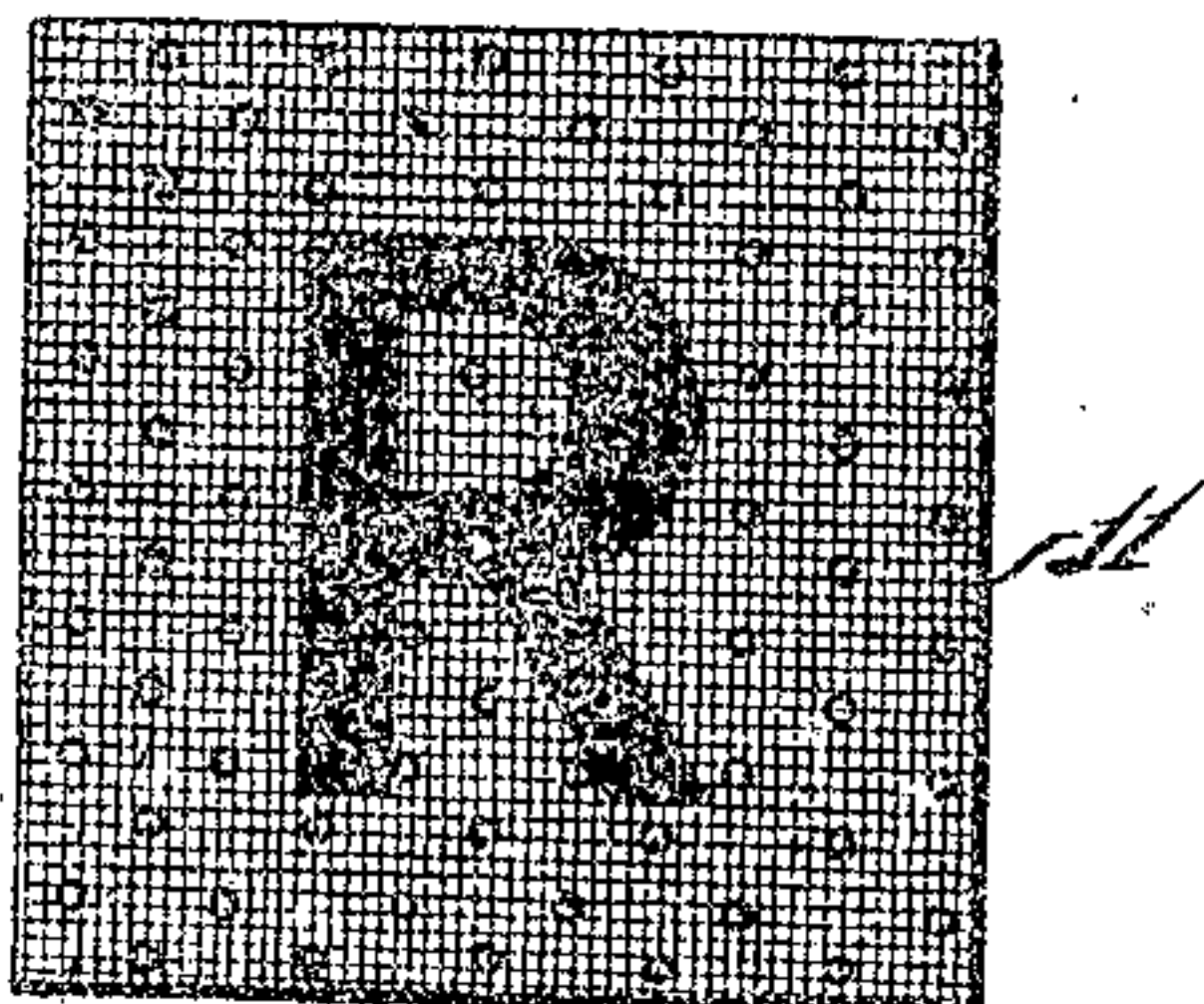


Fig. 6.



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UNITED STATES PATENT OFFICE.

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PROCESS OF PHOTOGRAPHY

No. 887,845.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed January 16, 1907. Serial No. 352,512.

To all whom it may concern:

Be it known that I, HENRY L. RECKARD, a citizen of the United States, residing at 24 West Sixtieth street, New York city, New York, have invented certain new and useful Improvements in Processes of Photography, of which the following is a clear, full, and exact description.

My invention relates to a process of photography, and my object is to improve upon the processes carried out in the prior art.

My invention will be set forth in the claims.

I am aware that in the Ippers patent No. 812,748 it has been proposed to give the appearance of relief in the resulting photograph by joining two counterpart plates together in one structure with the films separated, but I have found that this method is unsatisfactory in many cases, such, for example, as where it is desired to produce a design for fabric or paper printing in which the design or subject to be represented in relief is composed of large and small areas, because, for one reason, the graduated or modulated tones produced by the process of that patent are substantially the same whether the area to which the relief effect is to be given is large or small, and while such process is satisfactory in some cases where the areas to be given relief are all small and of substantially the same size, it has been found to be unsatisfactory where the areas are large or both large and small. My present invention avoids such defect in a great measure and enables me to give a molded (particularly in relief) effect to the object, which is far superior in the production of designs for commercial use in fabric, wall paper or oil cloth printing, for example. It also attains other advantages all of which are not herein described but some of which will be described more in detail hereafter.

In the drawings I have attempted to show some of the main features of my process, but as it is impossible in a pen and ink drawing, such as required by the Patent Office, to make an accurate representation of a photographic plate or print, I have been unable to show the correct appearance of the photographs or plates, and have therefore attempted to represent an illustrated embodiment of an example of the most important parts of my process, and in some cases the drawings are really diagrammatic, but the process will, I believe, be evident to any one skilled in the art from the accompanying de-

scription alone, the drawings being additional aids to such description.

In the drawings, Figure 1 is the object over a light background; Fig. 2 a negative made therefrom; Fig. 3 a positive made from the negative; Fig. 4 the diagrammatic illustration of the arrangement of the plates in carrying out the process; Fig. 5 is a camera, and Fig. 6 is a modification.

Fig. 1 represents a sheet of white paper, for example, with the subject (in this case the letter "R") to which it is desired to give the molded appearance, printed thereon in black. The specific steps of the process hereafter described result in a molded appearance of relief.

Fig. 2 is a negative plate made in a camera from the sheet of Fig. 1, that is, the areas which in Fig. 1 are dark are, in Fig. 2, translucent and preferably transparent, such, for example, as the "R," and the background or area which in Fig. 1 is white, is, in Fig. 2, less translucent than the "R" of the same plate and usually nearly opaque, although the background of Fig. 2 would usually be slightly permeable by light.

Fig. 3 is a positive photographic plate which may be made in a printing frame from the plate of Fig. 2 and in which the "R" area is preferably opaque, or nearly so, and the remaining area freely translucent and preferably transparent.

In Fig. 4 I have tried to represent diagrammatically three photographic plates in cross section, the upper one a cross section of the plate of Fig. 3 on the line $x-x$, the middle one a cross section of the plate of Fig. 2 on the same line, and the lower one a cross section of a negative plate made from the other two when light is passed through both of said first two plates onto said sensitized plate, which is preferably held in a camera focused on the adjacent plate (that is, the plate nearest the camera), as for example in Fig. 5, in which 1 represents the negative plate of Fig. 2, 2 the positive plate of Fig. 3 and 3 the sensitized plate which is to become the negative of the appearance produced by the plates 1 and 2. In this Fig. 4 I have not given an accurate representation of photographic plates, but have tried to diagrammatically represent, in such way as would be clearly understood, the principles hereafter to be described, the blackened areas, such for example as 4, 5 and 15 representing the opaque or less translucent portions of said plates, and the light areas 6

and 7 freely translucent or transparent areas. 8 represents a modulated area of the negative plate 3, the modulation or gradation in tone from transparency being indicated by the shade lines, and it will be observed that the area 8 varies from transparency in the center to substantial or actual opacity at the edges. The areas 9 are usually not transparent but may be more or less translucent, as desired, depending upon the density, for example, of the negative plate 3, but it will be observed that in a solar print made from such negative plate 3, the background 9, for example of the area 8, might be either opaque or lighter than opacity, and the area 8 would appear in such print as dark in the center and gradually lighter at the edges, giving a molded relief appearance.

Fig. 5 is a diagrammatic sectional view of plates 1 and 2, with the negative plate 3 in a camera 10.

In carrying out my process, I prepare two plates of the same subject, the "subject" in the drawings being the letter "R." These plates are preferably made photographically and in such case may be made from the ordinary sensitized glass or celluloid plates in a manner well known in the art. It will be observed that in one of these plates (Fig. 2, for example), the subject to be molded (the letter "R") is translucent, preferably transparent, on a less translucent, preferably nearly opaque, background, and in the other plate (Fig. 3) the subject is less translucent (preferably opaque) than said subject is in the plate of Fig. 2. These plates having been prepared are next placed close together in two skeleton plate-holders in order to allow subdued light to pass through both of them, for example, from a suitable white cloth screen. Such screen and plate holders are not specifically described because it is thought to be unnecessary in this application, as the same will be evident to one skilled in the art. While I have stated that the plates are placed close together, I cannot define exactly what this means in all cases, because the same may vary, and in fact it is not necessary in all cases that there should be any distance whatever between the plates at first. The plates are held in the plate holders, one behind the other and substantially in registry, that is, with, for example, the "R" of one plate directly behind the "R" of the other. It is not necessary in all cases that the registration be exact, and in fact in some cases it may be advisable to have the plates slightly out of registry. By "substantially in registry" I mean that the elements of one plate shall be behind the elements of the other whether the two elements are exactly in registry or slightly displaced. I then pass light through both plates 1 and 2, as heretofore described, and expose the sensitized plate 3 to such light, preferably in a

camera as indicated in Fig. 5, with the camera focused on the adjacent plate (that is, the plate nearest the camera), which adjacent plate is preferably the plate of Fig. 2, in which the subject "R" is freely translucent, and in the present case transparent. The sensitized plate of course is developed in any suitable manner. Where a camera is used, a hood 12 may be provided to exclude some or all of the light except that which passes through the plate 1. I have found that the best results are attained by excluding all the light except that which passes through both plates, so that said sensitized plate 3 is only exposed to the light which passes through both.

In Fig. 4 the dotted lines 13 and 14 represent light which passes by the opaque area 4 onto the transparent area 7 of the plate 1, that is, the area 4 will throw a shadow upon the area 7, which will be modulated at its edges, that is, between the points at which the dotted lines converge and the less translucent areas 5, so that the negative plate 3 will have an area 8 which is modulated at its edges, said area 8 being less translucent, or perhaps opaque, at its edges and gradually growing lighter toward the center of such area. A resulting print from such plate 3 would of course have the opposite appearance.

It will be observed that if the plates 1 and 2 are held fixed with relation to each other, the modulated appearance would be of the same size at the edge whether the areas 4 and 7 were of the same size as the areas 15 and 16, or not. Now if the areas 4 and 7 were comparatively small, the modulated appearance at the edge might be sufficient (with the plates held at a fixed distance apart) to give a satisfactory relief appearance, but if the areas 15 and 16 were much larger, the gradations of tone at the edge of the area 19 would not be sufficient to give a proper relief effect, but I have found that by moving one of these plates bodily with relation to the other so as to vary the distance between them, and where the camera is used as in Fig. 5 by moving the outside plate away from the intermediate one, the gradations of tone at the edges may be gradually increased so as to give the larger areas a more markedly relief effect, and I have accomplished this, for example, by moving the outside plate 2 away from the other one so as to increase the distance between them, whether said plates are at first actually in contact or separated by a slight distance. I have found that in most cases it is desirable to place the plates a slight distance apart, at first, for example, one-eighth of an inch, and to gradually move the outer plate away during the time of exposure, until it is perhaps one-fourth of an inch away, but obviously these distances will vary in different cases, depending upon the size of the areas desired to be molded, and other

considerations. I have indicated by the arrow 17 in Fig. 5 the direction of motion of the plate 2. It may be desirable, however, in some cases, not to move the plate directly back in a direction perpendicular to its plane, as indicated by the arrow 17, but to move it at a slight angle to such perpendicular, as indicated by the arrow 18. If such diagonal movement is given to the plate, it will not only attain the foregoing advantages, but also give an appearance as though the light in the resulting print fell upon the object from one side. I have not thought it necessary to illustrate the modified appearance of the negative plate 3 when such diagonal movement is made use of, because it will be evident that it would increase the modulation at the left of the area 8, for example.

It may be desirable in some cases to cause the negative plate 3 to have a background other than a plain background 5. For example it may be desired to have the subject to be molded appear on the resulting print as though it were on a fabric or other background. In order to accomplish this I take the subject to be molded and place it upon a background which, as a whole, is lighter than itself, but which contains dark areas, whether such dark areas are caused by shadows or by portions (such as inked areas) which do not reflect light, and one way to do this is to take the positive plate 2, and place it, for example, over the fabric desired, or a figured background lighter than itself, for example as illustrated in Fig. 6 (which represents a figured fabric with plate 2 over it), and then make a negative photographic plate of the same, which negative may be used in place of the plate 1 in the process. This would result in a negative 3 the same as before, except that the parts 9, for example, would be a positive of the fabric or other background, and a resulting solar print would be a negative of the fabric with the subject appearing molded thereon.

I am aware that various modifications may be made in the steps of my process, as heretofore described, without departing from the spirit of my invention as claimed, and I therefore do not limit myself to the particular specific steps or the mechanism heretofore described.

What I claim is:

1. The process of photography which consists in placing close together and substantially in registry two plates of the same subject, in one of which the subject to be molded is translucent on a less translucent background and in the other of which said subject is less translucent than it is in said first plate, passing light through both plates exposing a sensitized plate to such light, and, during such exposure, moving one of said first two plates so as to vary the distance between them, and developing said sensitized plate.

2. The process of photography which consists in placing close together and substantially in registry two plates of the same subject, in one of which the subject to be molded is translucent on a less translucent background and in the other of which said subject is less translucent than it is in said first plate, passing light through both plates, exposing a sensitized plate to such light with said first plate between said second plate and said sensitized plate, and, during such exposure, moving the outside one of said first two plates so as to vary the distance between them, and developing said sensitized plate.

3. The process of photography which consists in placing close together and substantially in registry two plates of the same subject, in one of which the subject to be molded is translucent on a less translucent background and in the other of which said subject is less translucent than it is in said first plate, placing said two plates before a camera with said first plate nearest the camera, passing light through both plates, exposing a sensitized plate to such light in said camera focused on said nearest plate, and, during such exposure, moving the outside one of said first two plates away from the other so as to increase the distance between them, and developing said sensitized plate.

4. The process of photography which consists in placing close together and substantially in registry two plates of the same subject, in one of which the subject to be molded is translucent on a less translucent background and in the other of which said subject is less translucent than it is in said first plate, passing light through both plates, exposing a sensitized plate to such light with said first plate between said second plate and said sensitized plate, and, during such exposure, moving one of said first two plates diagonally so as to vary the distance between them, and developing said sensitized plate.

5. The process of photography which consists in placing close together and substantially in registry two plates of the same subject, in one of which the subject to be molded is translucent on a less translucent background and in the other of which said subject is less translucent than it is in said first plate, placing said two plates before a camera with said first plate nearest the camera, passing light through both plates, excluding from said camera the light which does not pass through said nearest plate, exposing a sensitized plate to such light in said camera focused on said nearest plate, and, during such exposure, moving the outside one of said first two plates away from the other so as to increase the distance between them, and developing said sensitized plate.

6. The process of photography which consists in placing close together and substantially in registry two photographic plates of

the same subject, in one of which the subject to be molded is translucent on a less translucent background and in the other of which said subject is substantially opaque and the remainder of said plate transparent, placing said two plates before a camera with said first plate nearest the camera, passing light through both plates, excluding from said camera substantially all light except that which passes through the plate nearest thereto, exposing a sensitized plate to such light in said camera focused on said nearest plate, and, during such exposure, moving the outside one of said first two plates away from the other so as to vary the distance between them, and developing said sensitized plate.

7. The process of photography which consists in making a photographic plate of the subject to be molded, said subject being in said plate substantially opaque on a freely translucent background, placing said subject over a background lighter than the same but containing dark areas and making a negative photographic plate of the same, placing said plates close together and substantially in registry before a camera focused on said lat-

ter plate, passing light from said first plate through the second plate onto a sensitized plate in said camera, moving the outside plate away from said other plate during such exposure, and developing said sensitized plate.

8. The process of photography which consists in making a photographic plate of the subject to be molded, said subject being in said plate substantially opaque on a freely translucent background, placing said subject over a background lighter than the same but containing dark areas outside of said subject and making a negative photographic plate of the same, placing said plates close together and substantially in registry before a camera focused on said latter plate, passing light from said first plate through the second plate onto a sensitized plate in said camera, and developing said sensitized plate.

Signed at New York, N. Y. this 12th day of January 1907.

HENRY L. RECKARD.

Witnesses:

JOHN W. IPPERS,
EMERSON R. NEWELL.