(No Model.)

T. H. BLAIR.

CAMERA BOX.

No. 304,406. Patented Sept. 2, 1884.

Fig. 1.

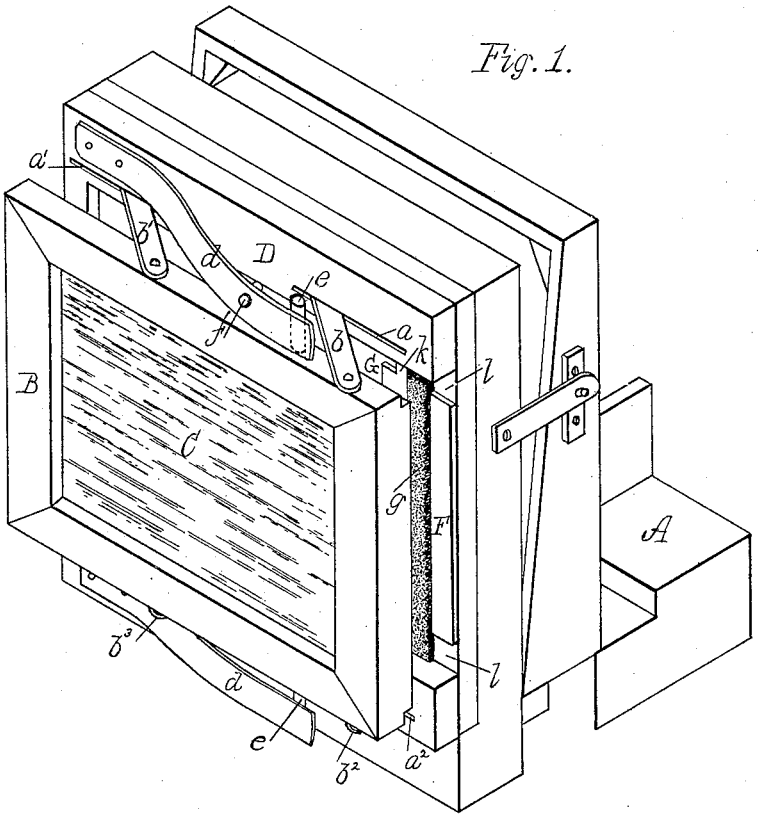
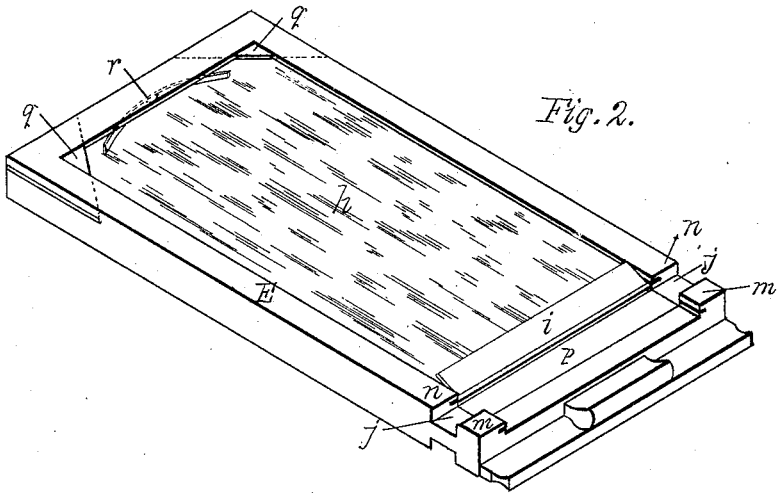


Fig. 2.



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THOMAS HENRY BLAIR, OF BOSTON, MASSACHUSETTS.

CAMERA-BOX.

SPECIFICATION forming part of Letters Patent No. 304,406, dated September 2, 1884.

Application filed April 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HENRY BLAIR, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Camera-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which a form part of this specification.

This invention relates to "photographic camera-boxes," so called, for exposing dry plates; and it consists in the arrangement and construction, hereinafter described, of the frame containing the ground glass used for focusing purposes, whereby it is easily and quickly removed from its normal position in the focus of the lens where occasion requires the substitution of the plate-holders and plate in order to make an exposure.

It further consists in the combination of a camera-box with a plate-holder having a flap and depressions, substantially as hereinafter described.

It further consists in a plate-holder constructed with parts consisting of ears, a flap, and spring, substantially as hereinafter described.

The drawings accompanying this specification represent in Figure 1 an isometric view of a camera-box containing my improvements, while Fig. 2 is a plan of a plate-holder with the shield removed and adapted to be used in connection with said camera-box.

In these drawings, A represents a camera-box of ordinary construction, while B represents the frame containing the ground-glass plate C, used for focusing purposes. Hitherto these plates have been generally removed or separated from the camera-box, in which case they are always in the way, and apt to become broken or mislaid. In some instances said frame B has been hinged at the bottom, opening out and downward; but there are disadvantages attending this likewise.

I have shown at D the rear or back portion of the box, against which the plate-holder rests. In the upper and lower portions of this frame D, I have cut four narrow slits, $a\,a'\,a^2\,a^3$, similarly disposed upon the four corners. In these slits or grooves are pivoted four short links, $b\,b'\,b^2\,b^3$, whose length is equal to or somewhat greater than the thickness of the plate-holder E. The outer ends of the links b, b', &c., are pivoted, as shown in Fig. 1, to the upper and under sides of the frame B, containing the ground-glass plate C. Hence it is readily understood that the frame B, with its plate C, is capable of movement toward and away from the rear portion of the box proper and always maintaining its parallel movement in relation thereto.

To return the frame to its normal position—that is, with the ground glass in the focus of the lens, or thereabout—and retain it there, I affix plate-springs $d\,d$ to the top and bottom of the frame D of the camera-box, and bearing against two studs, $e\,e$, similarly disposed upon the frame B of the focusing-glass, the tension of the springs being so exerted as to bear against the studs $e\,e$ and maintain the glass C and its frame B in close relation with the camera-box. Further, a small stud or pin, f, is secured to the upper plate-spring d and projecting inwardly to limit the throw or movement of the frame B where the plate-holder is to be admitted. Since the tension of the spring d retains it singly against the stud e, upon the motion of the plate outward a certain distance, the latter brings up against said pin f and stops further movement. By means of the springs $d\,d$ pressure is brought to bear equally both above and below up the focusing-frame B; hence when the plate-holder is inserted between said frame and the rear portion of the camera-box the latter is maintained by the transmitted pressure in its proper position snugly and closely against the box, which, in connection with the packing g, (shown in Fig. 1,) prevents any admission of light. This packing g may be of plush or similar material, and is used especially in combination with the peculiar plate-holder which I propose using in connection with my invention.

In place of the packing g, above described, the ordinary spring-actuated flap or light-preventer may be substituted therefor with equally good results.

In Fig. 2 of the drawings I have shown a double plate-holder, E, with one shield removed. The chamber h thus exposed is provided with a light-preventer or flap, i. This flap is not spring-actuated, as usual, but is so

situated with regard to the sensitized plate to be placed therein that the plate shall tend to spring the flap away from it toward the shield which covers it. This is accomplished by having the portion of the frame to which the flap is attached slightly below the surface of the plate when in position in the holder.

Upon the open end of the plate-holder E, I have formed two depressions, *j j*, in rear of the flap *i*, and so disposed that when the holder is in position upon the camera-box A the plush or packing *g* coincides and fits into said depression and upon the mid-rib *p* of the plate-holder. It is obvious, after the plate-holder E is in position on the box A, that upon withdrawal of the shield the sensitized plate bears upon the flap *i* and presses it against the strip G, hereinafter described, which is secured to the frame of the camera-box, while the packing *g* fits into and bears against the faces of the depressions *j j* and the portion *l* of the holder, and, passing below the grooves in which the shield slides, breaks the joint. This device effectually shuts out and excludes any rays that otherwise might enter by and through the grooves in which the shield moves when drawn for the purpose of making an exposure and affect the plate, and the interior of the plate-holder and camera-box is rendered impervious to light.

To derive the utmost benefit from the packing *g*, which projects above the general plane of the frame D, against which the holder E fits, I have attached on either side of said packing two thin strips, F G, of wood. The outer strip, F, is secured as shown, forming notches *l l*, while G—the inner—has smaller notches formed in it, leaving lips *k k*. When the holder E is in position in the camera-box A, the notches *l l* receive the projections *m m* on the plate-holder, the packing filling the depressions *j j* and extending across the plate-holder, while the corners *n n* of the plate-holder extend into the notches in the strip G and abut against the lips *k k* formed thereon. This securely locks said holder E in its position and prevents displacement when the shield is withdrawn. It can only be removed by pressing the plate-holder away from the camera-box until the corners *n n* are disengaged from contact with the lips *k k*, before mentioned. The strip F likewise serves to prevent to a great degree the wear upon the packing *g* attendant upon the insertion or removal of the plate-holder over it.

The plate-holder F is shown in Fig. 2 as being provided with ears *q q* at the back or rear end of the holder, while the front portion has substituted therefor the flap *i*. These together hold the plate in place. To prevent the plate from escaping from under the flap *i* and maintain it in close connection with said flap, to keep the latter against the strip G and aid in preventing the entrance of light, I have secured a plate-spring, *r*, whose tension is exerted to pass the plate toward the flap *i*.

The operation of my camera-box is as follows: Supposing the lens has been focused and the operator is ready to introduce the plate-holder preparatory to an exposure. The frame B and ground glass C are pressed outward away from the rear of the camera-box D and against the pressure of the plate-springs *d d*, this plate B always retaining a vertical position parallel with the back of the box A, owing to its manner of attachment, and moves in the arc of a circle upon the pivoted links *b b' b² b³* until the pin *e* meets with the stud *f* upon the spring *d*, when its movement is arrested. The plate-holder is then free to be inserted in the space now existing between the camera-box A and the frame B. The operator, having inserted the holder E in its proper position, releases the frame B, which, through the action of the springs *d d*, returns said frame to a position in contact with the holder E, the tension of the springs being sufficient to maintain the plate-holder tightly in position against the rear portion, D, of the camera-box A. The slide is now drawn, the light being excluded by the action of the flap *i*, in conjunction with the packing *g* and the depressions *j j*, as hereinbefore explained. The exposure being made, the shield is returned in the holder. The operator again presses the pivoted swinging frame B back, when the plate-holder is disengaged and removed, and the frame being again released, the action of the springs *d d* returns it to its normal position in readiness to have an image thrown upon it when occasion requires.

I do not wish to be limited to my precise form of construction as herein shown and described, as I consider my invention to consist in the combination of a camera-box with a spring-actuated frame for holding the focusing-glass, said frame being movable with relation to the camera-box proper.

I claim—

1. The combination of the box A, spring-actuated frame B, with the pivoted links *b b' b² b³*, springs *d d*, pins *e e*, and stud *f*, all substantially as and for purposes stated.

2. In a camera-box, the combination, with rear frame, D, and packing *g*, of the spring-actuated movable focusing-frame D and plate-holder E, substantially as described, whereby light is entirely excluded when exposure is made, as stated.

3. The combination, with a camera-box, as herein described, of the plate-holder E, with its flap *i*, and depressions *j j*, as and for purposes set forth.

4. The plate-holder E, constructed with the parts as described, consisting of the ears *q q* and flap *i*, with the spring *r*, as and for purposes herein set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS HENRY BLAIR.

Witnesses:
H. E. LODGE,
A. F. HAYDEN.