(No Model.)

J. L. ATWATER.

PHOTOGRAPHIC CAMERA.

No. 595,551. Patented Dec. 14, 1897.

FIG. 1

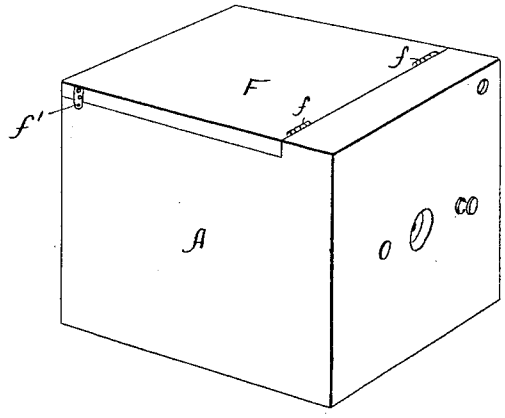

FIG. 5

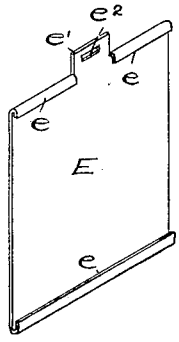

FIG. 2.

FIG. 3.

FIG. 4.

WITNESSES:
Sew. C. Curtis
H. W. Munday.

INVENTOR:
JOHN L. ATWATER.
BY Munday, Evarts & Adcock.
HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN L. ATWATER, OF WESTERN SPRINGS, ILLINOIS, ASSIGNOR TO THE VIVE CAMERA COMPANY, OF CHICAGO, ILLINOIS.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 595,551, dated December 14, 1897.

Application filed March 16, 1896. Serial No. 583,391. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. ATWATER, a citizen of the United States, residing in Western Springs, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Photographic Cameras, of which the following is a specification.

In the present invention I have designed to produce a compact portable photographic camera of simple construction which will contain a number of separate sensitive plates or films which may be easily changed in daylight; and the invention consists in the novel devices and novel combinations of parts and devices herein shown and described, and more particularly pointed out in the claim.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a perspective view of the camera closed and ready for use. Fig. 2 is a vertical longitudinal central section of the same, showing the lid of the camera raised and the flexible cloth sleeve drawn out, as when the changing is being effected. Fig. 3 is a fragmentary section on the line 3 3 of Fig. 2, the plate and film or their carriers being, however, omitted in said section. Fig. 4 is a detail, and Fig. 5 is a perspective view of one of the removable plate or film carriers.

In said drawings, A is the camera-box, consisting of a rectangular light-tight box made a little longer in one direction than in the other. The lens a, shutter a', and front vertical partition a^2 are of ordinary construction, such as have been frequently used in small cameras of this general character, and require no description to enable those skilled in this art to fully understand them.

B is a partition extending from the vertical partition a^2, to which it is connected at a line just above the lens, toward the rear of the box and terminating at the upper edge of said box at a line coincident or approximately coincident with the upper edge of the plane or position occupied by the sensitive plate or film when in place or position for taking the photograph.

C is a piece of smooth metal having at its front end a lip or ledge c. One of these ledged strips or pieces is placed at each side of the camera-box, on the inside of said box and next to the back, and they may extend from the bottom of the box to the upper edge thereof. A spring D, which may consist of a flat strip of spring-brass, steel, or other resilient material, is fixed to the inside of the rear of the box, as shown in Fig. 2, and serves to press the plate or film holders or carriers E out against the ledges c, and thus to hold them upright and firmly in place.

F is a lid for closing the top of the camera-box, to which it is hinged at f, and catches f' are provided to secure it when closed.

G is a flexible cloth sleeve made of light-tight material and constituting a changing-bag connected directly to the camera-box. At the outer end of this sleeve is an opening G', in which to insert the hand in changing the plates or films. In the edge of this opening is inclosed an elastic cord G^2, which, when the hand is inserted, will clasp the wrist and thus make a light-tight connection. The other end of the sleeve G is attached to a frame H, which may consist of a wooden frame or a light metal bar or piece of wire bent to form a square and hinged at the front to the camera-box, as at h.

At the rear upper corners of the box, underneath the lid F, are hinged clasps, latches, or catches J to hold the frame H and sleeve closed on the camera and to prevent the accidental opening of the frame by the movements of the operator's hand in changing plates or films.

The plate or film holders or carriers are made, preferably, of thin sheet metal. I have used for this purpose the common black japanned ferrotype-plates cut to a suitable size and having the upper and lower edges turned over, as at e, to form lips or ledges to hold the film or plate in position. The upper side is provided with a handle e', by which to more readily grasp the carrier with the thumb and finger in changing. This handle e' may preferably be slotted with the slot e^2, in which a tag may be fastened for still further facilitating said handling and also for receiving a number.

The operation of the device is as follows: In the dark room the holders E are filled by slipping the upper and lower edges of the film

or plate under the lips *e* until all of the carriers or holders are provided therewith. The pack of holders is placed in the camera, as shown in Fig. 2, each carrier with the sensitive plate or film facing toward the lens. Where films are employed instead of glass plates, as many as three dozen or more can be easily accommodated; but in case glass plates are used about one-third as many will occupy the same space. To insert the package into the camera, the catches J are unlatched and the hinged frame H, to which the inner end of the sleeve G is attached, is raised up out of the way, the lid F being also lifted, thus leaving the top of the camera open and unobstructed for the insertion of the package of carriers with their contents. After the package is inserted the frame H is closed down and the latches J latched. The sleeve G is tucked or pushed into the cavity or space K above the partition B, where it is out of the line of the light-rays from the lens. The lid F is then closed down and latched and the camera is ready for use. When the package is thus in place, the spring D, bearing against the rearmost one of the carriers, will force the entire pack forward against the ledges or shoulders *c* and hold them firmly in place, the foremost one of the pack being in position to receive the image from the lens and at the right focal distance for that purpose. After exposure of the foremost plate, to change plates, the lens being closed, the lid F is raised and the sleeve G drawn out. After drawing out the sleeve the lid is closed down upon it, so as to shut out the light from the interior of the camera while the hand is being inserted into the sleeve. After the hand is inserted in the sleeve the lid is again raised to permit the fingers to have access to the plates. The operator now feels for the plates with his fingers until he gets hold of the carrier containing the foremost or exposed plate or film and raises this vertically out of its position, (which the smooth metal strips C freely permit,) and when the carrier is clear of the rest moves it back and pushes it down behind the pack and next the spring D, so that the exposed film or plate now becomes the rearmost one. If desired, to avoid possible accidental double exposure of the same plate or film, the carrier may be turned with its back outermost in thus replacing. When the change is effected, the lid F is temporarily closed while the hand is being withdrawn from the sleeve, and after the hand is withdrawn the open end of the sleeve is closed or folded, the sleeve put back into the space K, and the lid F closed and latched, when the camera will be ready for another exposure. Although this operation requires a somewhat lengthy explanation, it is in fact one which may be very quickly and readily performed in open daylight without danger of fogging or injuring the plates.

Although the camera is adapted to use in its holders or carriers E either glass plates or thin sensitive celluloid films by simply changing the width of the frame formed by the folded-over edges or lips *e*, it is more especially adapted to be used with the greatest advantage with the thin celluloid films. A great inconvenience in handling these thin films arises from their tendency to curl up. This is especially annoying when developing the exposed plate. One special advantage of employing the thin sheet-metal carrier is that the film need not be taken out of the carriers until after it is developed and ready for the hypo or fixing bath. Such films thus remaining in the carrier in which they were exposed may be quite as readily developed as glass plates, and if during the development the operator desires to look through the film, as is sometimes the case, this may be readily done by slipping the film partly out of the carrier, to which it may be readily returned to proceed with the developing. When such films are wet and the carrier is wet, the film will slip very easily upon the carrier.

I claim—

The combination in a camera-box of a flexible changing-sleeve open at both ends, the inner end attached to the box under the lid, with the lid adapted to shut down over the sleeve when the latter is drawn out so as to exclude the light while inserting the hand into the sleeve or withdrawing it therefrom, substantially as specified.

JOHN L. ATWATER.

Witnesses:
H. M. MUNDAY,
JOHN W. MUNDAY.