(No Model.) 2 Sheets—Sheet 1.

O. HYDE.

PHOTOGRAPHIC CAMERA.

No. 356,941. Patented Feb. 1, 1887.

FIG. 1.

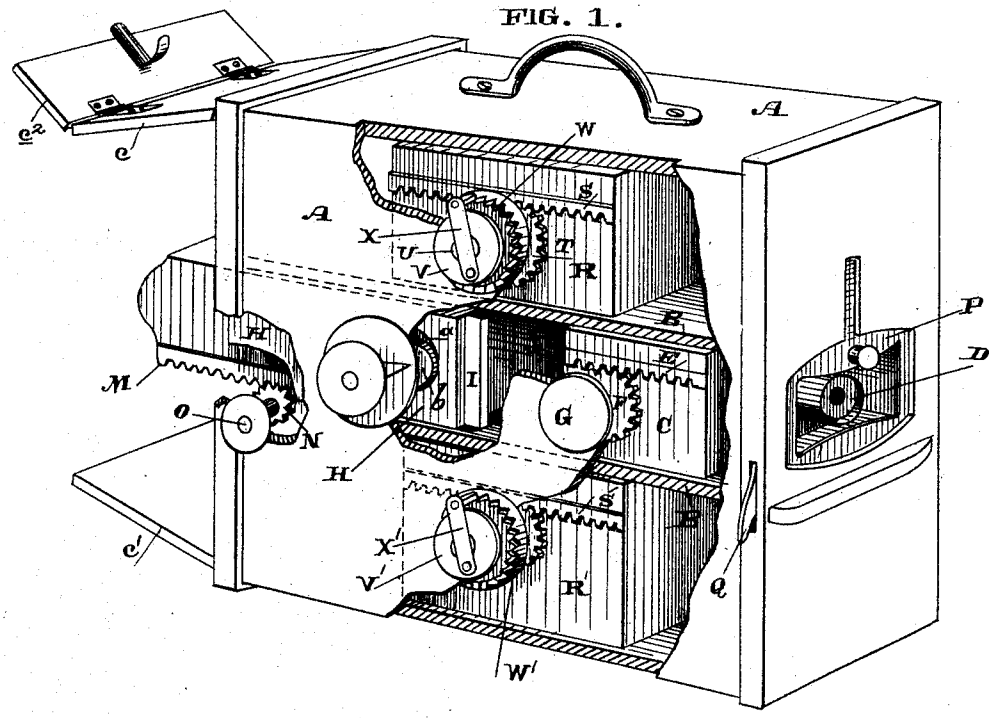
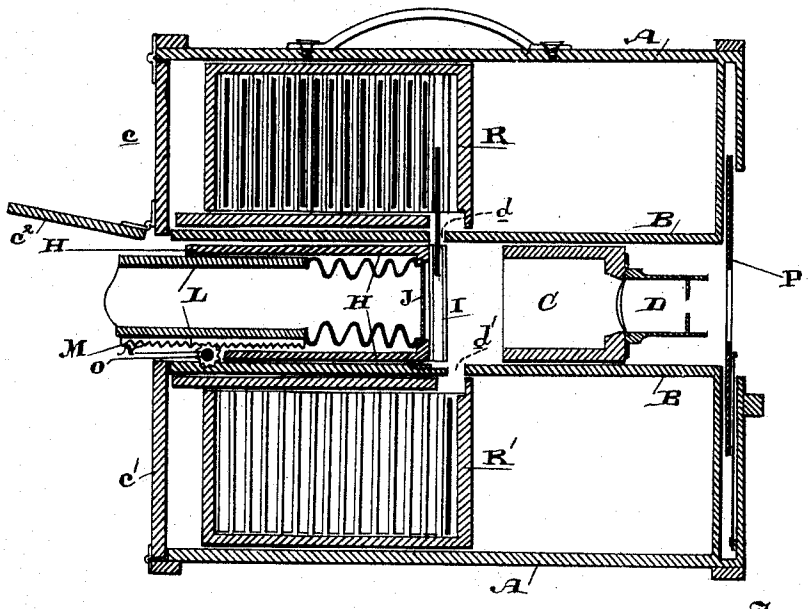


FIG. 2.



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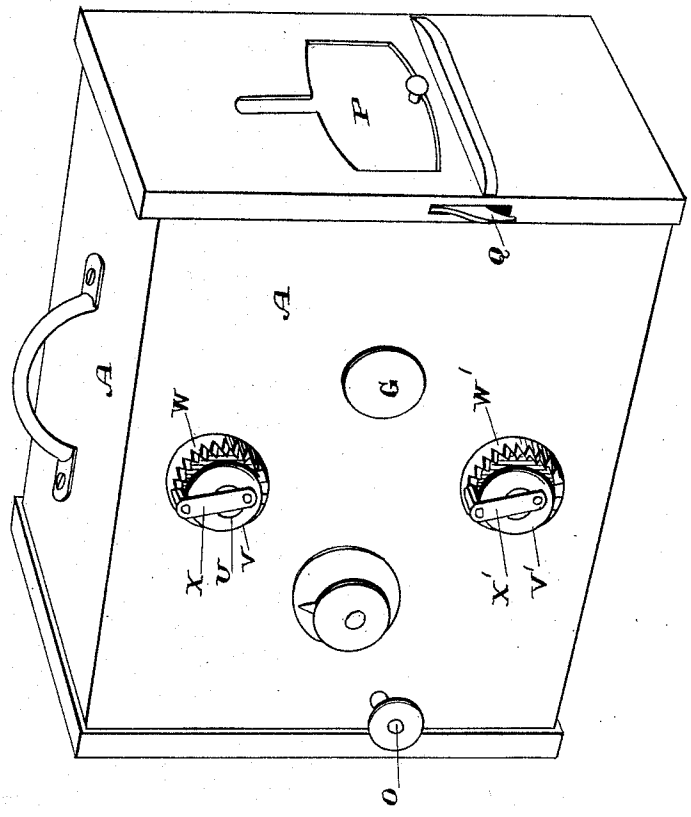
(No Model.) 2 Sheets—Sheet 2.

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FIG. 3



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UNITED STATES PATENT OFFICE.

OLIVER HYDE, OF VALLEJO, CALIFORNIA.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 356,941, dated February 1, 1887.

Application filed May 1, 1886. Serial No. 200,870. (No model.)

To all whom it may concern:

Be it known that I, OLIVER HYDE, of Vallejo, county of Solano, State of California, have invented an Improvement in Photographic Cameras; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to photographic cameras; and it consists of a case having three horizontal compartments, the central one of which contains the lens, plate-holder, and bellows for observation, the upper compartment containing a magazine of plates, and the lower compartment another magazine for the reception of the plates after the picture has been taken, and in combination with this of a mechanism operated from the exterior of the case, whereby the focus is adjusted, and the magazines moved so as to adjust the plates in position for pictures to be taken and remove them into the receiver below without opening the box at all.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my apparatus with one side partially removed, showing the interior mechanism. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a perspective view showing the case closed.

A is the exterior case, having partitions or diaphragms extending horizontally and parallel with each other, as shown at B, thus dividing the case into three compartments, one above the other. In the front part of the central compartment is a sliding frame or box, C, fitting snugly within the compartment and carrying the lens D. This box has upon its side a rack, E, and a pinion, F, is constructed to mesh with this rack, its shaft extending through the side of the case and having a knob, G, by which it may be turned, so as to move the lens out or in for the purpose of adjusting the focus properly. In the rear end of this central division is a second case, H, having upon its forward end the vertical guides I, which serve to receive the plate and hold it ready for exposure, when desired. Just behind these guides, and in the forward end of the box, is fitted the ground-glass or translucent plate J, which is employed for the purpose of obtaining a correct focus and position of the picture to be taken, in the usual manner. Within the box or case H is a second smaller case, L, containing a bellows and hood, through which observation is taken for the purpose of adjusting the focus of the lens. This box or case L, sliding within the box H, is also provided with straight-toothed racks upon the bottom of the sides, as shown at M, and these are engaged by pinions N upon a horizontal shaft, O, which extends from the rear portion of the box just below the case, so that the pinions engage with the racks, and by turning knobs upon the outer ends of the shafts the bellows and its sliding case may be drawn out from the case H, so as to project to the rear of the exterior case. The rear end of this box L is made to fit the sides of the face, so as to exclude light from the eyes while the operation of focusing takes place. When not in use, the bellows and its case may be moved in, so as to be entirely inclosed within the outer box.

The lens at the front is ordinarily within the front line of the box when taking distant pictures or landscapes; but, if desired, it may be projected through the front opening and be used with an ordinary cap or shutter. When used for instantaneous pictures, any well-known or desirable form of automatic rapidly-moving shutter may be employed, as shown at P, this shutter being released and allowed to fall so as to produce a momentary exposure by means of a trigger at Q. In the upper part of the lens A is a magazine or box, R, the interior of which has vertical grooves or channels, in which any desired number of prepared plates may be placed, this work being done in the ordinary dark room, and the slide or cover being put upon the box so that it is light-tight. This box is placed within the upper compartment of the case A, with its sliding cover downward, and the rear end of the cover is secured to the outer box or case, so that when the magazine-box R is moved forward it will produce a result the same as the withdrawing of the sliding cover—that is, the box being moved away from the cover produces an opening in the front end, through which the plates may be allowed to pass, as desired.

Upon the side of the box R is fixed a straight rack, S, and this is engaged by the pinion T upon the shaft U, which extends through the

side of the box A, and is provided with a knob, V, by which it may be turned, so as to advance the magazine or plate-containing case, as desired. In connection with this knob is employed a circular rack, W, fixed to the exterior of the case, and a spring-pawl, X, is secured to the turning-knob, so that its point will engage the toothed circular rack. The number of teeth in this rack correspond with the number of plates in the magazine-box, and whenever the knob is turned so as to advance the pawl one tooth it will have advanced the box or magazine also, so as to bring a plate within the box in position to drop into the plate-holder in the central compartment. The lower compartment of the case A contains a similar sliding box, R′, having corresponding partitions or divisions to receive plates as fast as they are delivered from the central compartment after the pictures have been taken, and it is provided with a sliding cover which is on top of the box R′, and is also fixed at its rear end so that when the box R′ is moved forward the cover will remain stationary and the box will be opened to admit the plates from above.

Above the side of this box is a straight rack, S′, similar to the one described upon the box R, and this is operated by a pinion shaft and knob upon the exterior of the box, and a similar circular rack, W′, with spring-pawl X′, attached to the knob V′, serves to regulate the movements of this lower box and cause it to receive one plate at a time. Upon the side of the box or case H, in the rear of the central compartment, is formed a depression, *a*, within which a cam or eccentric, *b*, fits. The shaft of this eccentric has a knob upon the outside, by which it may be turned, and the effect of this will be to move the case H forward and to withdraw it when turned in the opposite direction.

The operation of my apparatus will then be as follows: The magazine R, having previously been filled with plates prepared and ready for use, and its sliding cover being in place, the rear hinged door, *c*, in the upper part of the case A is opened, and the magazine-holder R is introduced from behind until the rack upon its side engages with the pinion, before described. The sliding cover, being downward and resting upon the upper horizontal partition, B, in the case A, is secured so as to remain stationary, while the magazine R may be moved forward by means of the knob, pawl, and ratchet, before described. The receiver R′ is introduced into the lower compartment of the case A by opening a similar door, *c′*, at the rear of the case, and after these magazines have been introduced the doors *c c′* may be closed and locked, thus preventing any access of light to this portion of the case. A central hinged door, c^2, which opens into the rear of the central compartment, may now be opened, and the bellows and hood may be withdrawn through this opening, and the case or box H being moved forward by means of the cam *b*, before described, so that the ground-glass plate stands in line directly below a slot, *d*, made transversely in the upper horizontal partition B, the lens may be moved by its knob until the proper focus is obtained, the shutter in front being opened for this purpose. The focus being obtained, the shutter is closed, and the hood may be again closed in or shut up. The cam is then turned a half-turn backward, which removes the ground-glass or transluscent plate its own thickness backward from the line of the slot *d*, before described, and brings the vertical guide I directly in line with this slot. The magazine R now being moved forward one notch by means of the knob upon the outside, as before described, it will bring the first plate in the magazine above the slot or opening *d*, and allow it to dop into the guides I in the central compartment, and it will be perfectly in focus by reason of its occupying the position which had previously been held by the ground-glass plate. The apparatus is now ready for taking a picture, and by releasing the shutter the exposure takes place and the picture is taken. The cam which moves the box H is now turned a half-turn forward, which moves the box H the thickness of the plate forward, and brings the guides I in direct line with a transverse slot, *d′*, made in the lower of the two horizontal partitions B in the case A, and the plate which was in the guides I will then drop through this opening into the receiving-box R′, which is in line below it. The ground-glass plate will then be brought into its original position beneath the upper slot, *d*, ready for again focusing for another picture. The receiver R′ is then moved forward one notch of its pawl and rack upon the outside, which brings another set of grooves or guides beneath slot *d′*, in readiness to receive another plate. The magazine R is moved forward in a similar manner when everything is ready to take another picture, and another plate is dropped into the guides I, the box H having been first retracted by the action of the cam, as before described. In this manner as many pictures may be taken as there are plates in the magazine, and the plates may be transferred from the magazine into the plate-holder for the purpose of taking the picture, without at any time opening the exterior case or allowing any rays of light to enter any portion of the apparatus.

It will be impossible to make the mistake of taking two pictures upon a single plate if the operations are carried out, as no plate can be returned into the plate-holder without reversing the apparatus, which this construction avoids.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A photographic camera comprising an inclosing-case having parallel partitions form-

ing three compartments one above the other, the upper compartment containing a magazine of sensitive plates, a rack, and a gear engaging the rack by which the magazine is advanced so as to deliver the plates, a central compartment containing the lens and focusing mechanism, and a receiver in the lower compartment, into which the plates are discharged after having been exposed, substantially as herein described.

2. The upper compartment having a magazine provided with a sliding cover, in combination with a rack, pinion and knob by which this magazine may be advanced while its sliding cover remains stationary, substantially as and for the purpose described.

3. The upper compartment, containing the sliding magazine with its rack and an actuating-pinion, the lower compartment, containing a similarly-shaped receiver, into which plates may be delivered, and a central compartment, containing the lens at its front, in combination with a movable case at the rear of the central compartment, having the translucent plate fixed to its front, and guides for receiving the plate from the magazine and transferring it after having been exposed to the receiver below, substantially as described.

4. The movable box or case H within the central compartment of the case, having the plate-holder guides and the translucent focusing-plate fixed to its front end, in combination with a cam and knob by which the box may be moved forward or backward, so as to bring the focusing-plate or the guides beneath the slot *d* in the upper diaphragm of the case, substantially as herein described.

5. The case or box H, having a focusing-plate and guides or plate-holders fixed to its front end and a cam by which it may be moved forward or back, in combination with an interior bellows and hood, racks, and pinions by which the bellows may be extended or closed up within the case, substantially as described.

6. The compartment-case having a plate-magazine in the upper compartment, a lens and focusing mechanism in the central compartment, a plate-receiver in the lower compartment, transverse slots in the horizontal partitions through which the plates may be delivered successively from the magazine to the central compartment and thence to the receiver below, and racks and pinions by which the plate-magazine and receiver may be advanced, in combination with fixed circular racks and spring-pawls connected with the knobs and pinions, whereby the magazine and receiver may be advanced accurately, substantially as described.

In witness whereof I have hereunto set my hand.

OLIVER HYDE.

Witnesses:
H. BERNHARD,
CHAS. H. HUBBS.