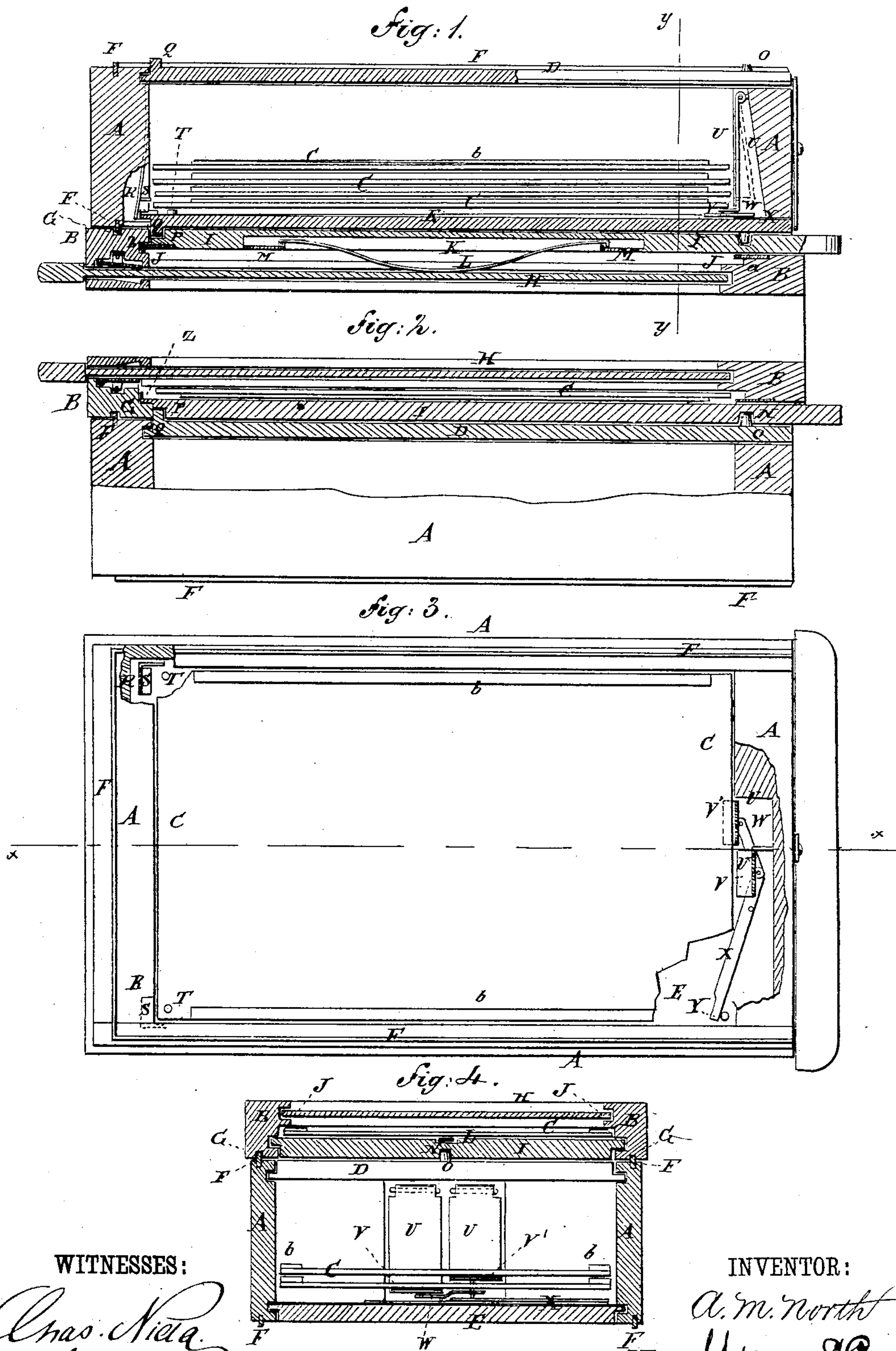


(No Model.)

A. M. NORTH.
Combined Dry Plate Changing Box and Plate Holder.
No. 237,996. Patented Feb. 22, 1881.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALBERT M. NORTH, OF AFTON, NEW YORK, ASSIGNOR TO HIMSELF AND
EDWIN NORTH, OF SAME PLACE.

COMBINED DRY-PLATE CHANGING-BOX AND PLATE-HOLDER.

SPECIFICATION forming part of Letters Patent No. 237,996, dated February 22, 1881.

Application filed April 8, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALBERT M. NORTH, of Afton, in the county of Chenango and State of New York, have invented a new and useful
5 Improvement in Combined Dry-Plate Changing-Boxes and Plate-Holders, of which the following is a specification.

Figure 1 is a sectional side elevation of the improvement, taken through the line *x x*, Fig.
10 3, with the plate-holder beneath the box. Fig. 2 is a sectional side elevation, with the plate-holder above the box. Fig. 3 is a plan view, partly in section, with the top slide removed. Fig. 4 is a sectional end view, taken through
15 the line *y y*, Fig. 1, with the plate-holder above the box.

The object of this invention is to furnish dry-plate changing-boxes and plate-holders for use in dry-plate photography, so constructed
20 that the plates can be carried, changed from the box to the holder placed in the camera, and returned to the box without being exposed to light except when in the camera, and which, at the same time, shall be simple in
25 construction and convenient in use.

Similar letters of reference indicate corresponding parts.

A represents the changing-box, and B is the plate-holder. The box A is made of such
30 a length and breadth as to receive the plates C to be used, and of such a depth as to hold any desired number of plates C. The changing-box A is provided with a sliding top, D, and a sliding bottom, E. Along the edges of
35 the sides and rear end of the box A are formed tongues F, to enter corresponding grooves G in the sides and rear end of the holder B, when the said holder B is placed upon either the top or bottom of the said box A, to serve
40 as a guide in adjusting the holder B in place, and especially to prevent the light from entering between the said box and holder when changing the plates. The holder B is provided with a slide, H, to be drawn when the
45 holder is placed in the camera, and with a slide, I, to be drawn when changing the plates. The holder B is made with a shoulder, J, for the plate C to rest upon when in the holder to keep it in place and out of contact with the
50 slide H. The inner side of the slide I has a

groove or recess, K, formed in it to receive the half-elliptic spring L, the ends of which slide beneath plates M, attached to the said slide I over the ends of the groove K. The middle part of the spring L is designed to
55 rest against the back of the plate C and hold it upon the shoulder J. The outer surface of the slide I is flush with the surface of the holder B, so that the said slide I will fit snugly against either of the slides D E.
60

In the slide I, near its rear end, is formed a hole, N, to receive a pin, O, attached to the slide D or E, so that the slides D E may be drawn out by and with the slide I. The forward end of the slide I has a rabbet, P, upon
65 its outer side to receive a flange or cleat, Q, formed upon or attached to the forward end of the slide D or E, so that the slide D or E may be pushed in by and with the slide I. The rabbet P and cleat Q also guard against
70 the entrance of light between the said slides when drawn out.

R are two springs, which are placed in recesses in the end parts of the forward end of the box A, and which have inwardly-projecting
75 flanges S formed upon them near their lower ends, and in such a position as to be above the end of the first plate, C, when the said plate rests upon the pins or screws T, attached to the forward corners of the sliding
80 bottom E.

U are two plates, hinged at their upper ends in recesses in the rear end of the box A. Upon the lower ends of the plates U are formed forwardly-projecting flanges V. The plates U
85 are placed side by side, and are made of different lengths, so that there may be sufficient space between the flanges V to receive the end of a plate, C.

To the lower ends of the flanged plates U
90 V are pivoted the ends of a lever, W, which is pivoted at its center to a pin attached to the end of the box A.

To one end of the lever W is pivoted the end of a lever, X, which is pivoted, at a little
95 distance from its inner end, to a pin attached to the lower edge of the end of the box A. The lever X works in a recess in the lower edge of the rear end of the box A, and its outer end projects into such a position as to
100

be struck and operated alternately by one of the screws or pins T, attached to the forward corners of the sliding bottom E, and by a screw or pin, Y, attached to the rear corner of said sliding bottom E.

To the inner side of the forward end of the slide I is attached a lip, Z, to engage with a plate, a, attached to the rear end of the holder B, to prevent the said slide I from being entirely drawn out.

The faces of the plates C have narrow strips b, of paper, attached to the rear side of their edges to prevent the faces of the said plates from coming in contact with each other.

In using the improvement the prepared dry plates C are placed in the box A face downward, and one upon the other. The forward end of the lowest plate C rests upon the screws or pins T, and its rear end rests upon the lower flange, V. When a plate is to be used the holder B is placed below the changing-box A, and the slide I is drawn out, carrying the sliding bottom E with it. As the slide E begins to move outward it releases the springs R and allows them to move forward, bringing the flanges S beneath the forward end of the next lower plate C. As the slide E completes its movement the pin Y strikes and operates the lever X, the movement of which withdraws the lower flange, V, from beneath the rear end of the lowest plate C and moves the upper flange, V', inward beneath the rear end of the next lower plate C, and the lowest plate C drops into the holder B. The slide I is then pushed inward, carrying the sliding bottom E with it and closing both the changing-box A and the holder B. As the slide I and sliding bottom E complete their inward movement the forward end of the sliding bottom E strikes and pushes back the springs R, withdrawing the flanges S from beneath the forward end of the lowest plate C and allowing the said end to rest upon the screws or pins T. At the same time the pin or screw Y strikes and operates the lever X, withdrawing the upper flange, V', from beneath the rear end of the lowest plate and projecting the lower flange, V, to receive the said rear end of the lowest plate C, the said lowest plate C being thus left in position to be dropped out at the next outward movement of the slide I and sliding bottom E. The holder B may now be removed and inserted in the camera and the slide H

withdrawn to expose the plate C. When the exposure is completed the slide H is closed, the holder B is removed from the camera, inverted, and placed upon the top of the changing-box A. The slide I is then drawn out, which carries the top slide, D, with it and allows the plate or negative C to drop into the changing-box A upon the plates C already within the said box. The slides I D are then closed and the holder can be again placed beneath the changing-box A to receive another plate C. The sides H I have cleats attached to their outer ends for convenience in operating them.

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

1. A dry-plate changing-box and plate-holder, constructed substantially as herein shown and described, consisting of the box A, having sliding top D and bottom E, the flanged springs R, the flanged and hinged plates U, connected by an equal-armed lever, W, and operated from the sliding bottom E by a lever, X, and the holder B, having slides H I and spring L, whereby a dry plate can be removed from the box, used, and returned to the box without being exposed to light except when in the camera, as set forth.

2. In a dry-plate changing-box and plate-holder, the changing-box A, constructed with a sliding top, D, and bottom E, the flanged springs R, the hinged plates U, having flanges V, the equal-armed lever W, and the operating-lever X, substantially as herein shown and described, whereby the plates are supported and can be discharged, one at a time, as set forth.

3. In a dry-plate changing-box and plate-holder, the combination, with the sliding top D or bottom E of the box A, having pin O, of the slide I of the holder B, having hole N, substantially as herein shown and described, whereby the said top or bottom may be moved by and with the slide, as set forth.

4. The combination of a box and plate-holder, each being provided with a slide having pins and recesses to unite the two slides together, substantially as set forth.

ALBERT M. NORTH.

Witnesses:

GEO. A. HAVEN,
THOMAS COVERT.