

J. B. WILLYERD.
 PORTABLE DARK ROOM AND CAMERA.
 APPLICATION FILED AUG. 27, 1909.

988,421.

Patented Apr. 4, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

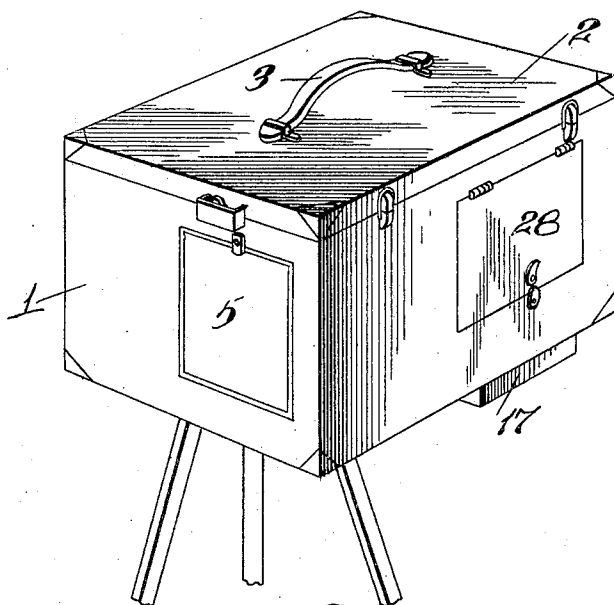
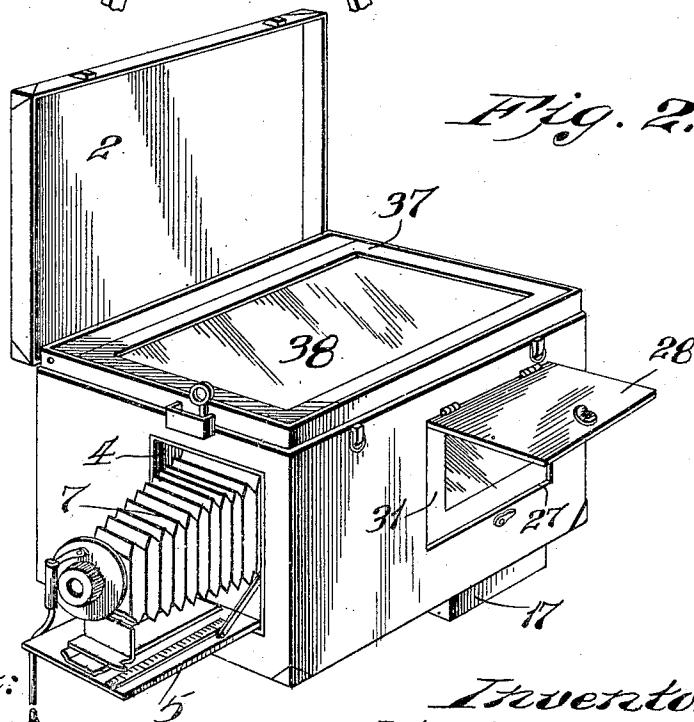


Fig. 2.



Attest:
 H. G. Fletcher.
 E. J. Wallace.

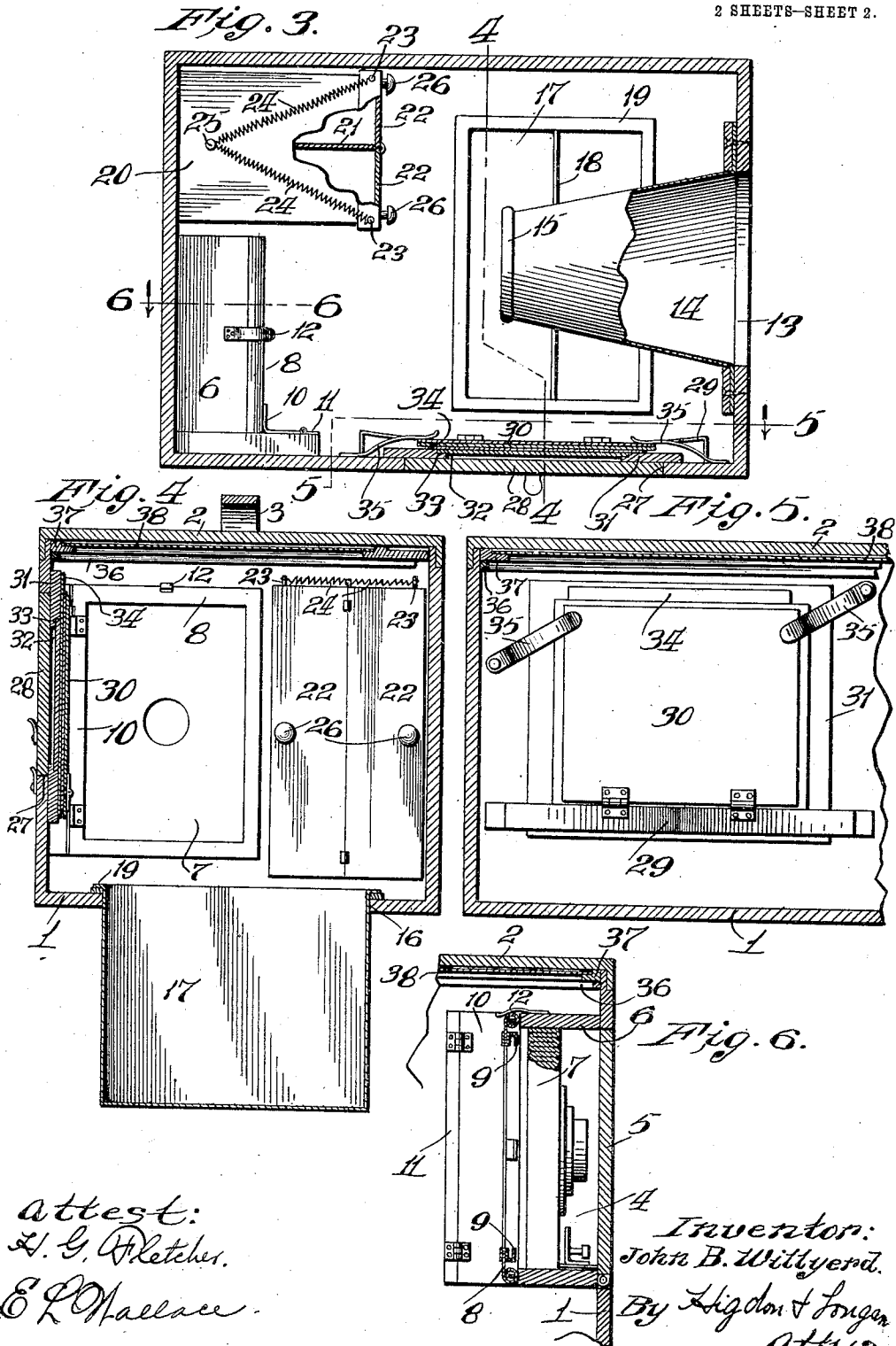
Inventor:
 John B. Willyerd.
 By Higdon & Longan
 attys.

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attest:
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 Attys.

UNITED STATES PATENT OFFICE.

JOHN B. WILLYERD, OF ST. LOUIS, MISSOURI.

PORTABLE DARK ROOM AND CAMERA.

988,421.

Specification of Letters Patent.

Patented Apr. 4, 1911.

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To all whom it may concern:

Be it known that I, JOHN B. WILLYERD, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Portable Dark Rooms and Cameras, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a combined portable dark room and camera, the object of my invention being to construct an improved portable dark room provided with a plate-holder and combine therewith a camera of the bellows type in such manner that the operator may supply the holder with a plate from within the dark room then obtain a proper focus by moving the lens relative to the plate-holder.

A further object of my invention is to construct a portable dark room in such manner that a tank containing developing and fixing baths may be positioned and held within the dark room with its upper margins flush or nearly flush with the bottom of the dark room so that the operator may have more room in which to perform the operations of developing and fixing plates and pictures printed from the plates, than is common in constructions having trays supported on the bottom of the dark room.

A further object of my invention is to construct an improved means for printing pictures from a plate as taken from the baths without delay incident to the drying of the plates.

A still further object of my invention is to provide a novel construction of plate or sensitized sheet or card magazine and an improved construction of plate-holder.

For the above purposes my invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1 is a perspective of the complete dark room and camera in a closed position showing a portion of a tripod; Fig. 2 is a perspective of the complete dark room and camera showing the camera extended and the lid and cover for the openings in open positions; Fig. 3 is a sectional plan of the complete dark room, the camera being inclosed therein and showing a number of the

parts partially broken away to show their construction; Fig. 4 is a transverse sectional elevation taken on the line 4—4 of Fig. 3; Fig. 5 is an elevation taken on the line 5—5 of Fig. 3 illustrating the detail construction of the printing apparatus; and, Fig. 6 is a detail vertical sectional elevation taken on the line 6—6 of Fig. 3 showing the relative positions of the camera when inclosed within the dark room and the hinged plate-holder.

Referring by numerals to the accompanying drawings: 1 designates the box constituting the dark room.

2 designates a hinged cover for the dark room and 3 a handle secured to the cover to provide a means for carrying the apparatus when closed. In the forward wall of the dark room 1 is an opening 4, and, hinged to the lower margin thereof is a cover 5.

Located within the box surrounding the opening 4 is a rectangular frame 6 of a size sufficient to receive a camera 7 of the bellows type when folded. Hinged to the frame 6 is a plate-holder 8, the contour of which corresponds with the contour of the opening 4, the upper and lower margins of the plate-holder being provided with longitudinal grooved cleats 9. An angular hinge member 10 is secured to the margin of the plate-holder 8 adjacent the side wall of the box 1 and the mating hinge member 11 is secured to the end wall of the frame 6. The plate-holder frame is preferably formed of a single piece of sheet metal having its upper and lower ends rolled or curved to provide rigidity for the frame. A spring-catch 12 is secured to the upper face of the frame 6 and is adapted to overlap and engage the curved upper margin of the plate-holder frame 8.

An opening 13 is formed in the rear wall of the dark room 1 and a flexible sleeve 14 is secured within the dark room to the margins of the opening 13. The inner end of the sleeve 14 is preferably provided with an elastic band (not shown) so that when the operator inserts his hand through the sleeve the elastic will conform to the wrist of the operator and exclude light from the dark room.

An opening 16 is formed in the bottom of the dark room and a tank 17, having a partition wall 18 dividing the tank into two compartments, one to receive a developing bath and the other a fixing bath, is inserted

through said opening. Said tank is provided with laterally extending flanges 19 at each of its upper margins, which flanges overlap the bottom of the box surrounding the opening 16 thereby supporting the tank with its top margins flush or nearly flush with the bottom of the box.

Positioned in the forward right hand corner of the dark room is a two-compartment magazine 20 having a dividing wall 21, and, fixed to the outer margin of the dividing wall 21 is a pair of hinged doors 22. Fixed in the upper margins of the doors 22 are pins or stubs 23, and carried by said stubs are the contractile coil springs 24 having their opposite ends secured to a stub or pin 25 adjacent the inner end of the top of the magazine 20 at approximately the transverse center of the magazine 20 and each door 22 is provided also with a knob 26.

An opening 27 is formed in the side wall of the dark room and a hinged cover 28 is provided for closing the opening. Fixed to the inner wall, adjacent the lower margins of the opening 27, is a spring 29 and hinged to said spring is an opaque shutter 30. A frame 31, the contour of which corresponds with the contour of the opening, is mounted against the inner wall of the box 1 and held in position by the spring 29. The frame 31 is provided with an opening 32 and surrounding said opening is a depression 33 adapted to receive a negative. After the negative has been inserted in the depression 33 a transparent sheet 34, preferably of celluloid, is positioned against the negative and a sensitized sheet or card is then positioned against the sheet of celluloid. The shutter 30 is then folded upwardly against the sensitized sheet and secured against the sheet by the springs 35 which are secured to the side wall of the box 1. A rib or cleat 36 is secured to the inner faces of the walls of the box 1 adjacent their upper margins and a frame 37 containing a plate or sheet 38 of transparent material is supported on the rib or cleat over the dark room, and, by reason of the sheet or plate being red in color the operator is permitted to open the cover 2 without affecting the undeveloped negatives or unfinished pictures within the box and which construction permits a view of the entire interior of the box.

By this construction and arrangement of parts, the operation of placing a plate in a position within the plate-holder where it may be exposed when the camera is operated and the exposed plate immersed in a tank containing developing and fixing solutions and then placed in a position together with a sensitized sheet or card, the printing from the negative is accomplished and the print from the negative is then immersed in a developing solution, all within easy access and in such relation relative to each other that

the various apparatuses for accomplishing the aforesaid results occupy a minimum of space within the dark room thereby providing a maximum of operating space facilitating the operations aforesaid.

Heretofore trays containing the fixing and developing baths have been placed within the dark room at some convenient point wholly above the bottom of the dark room thereby occupying a considerable amount of the operating space within the dark room.

By the construction of my dark room to support a tank with its upper margins flush or nearly flush with the bottom of the box, I obtain a free operating space within the dark room.

By my novel arrangement and combination of a camera of the bellows type with a dark room, the lens and operating parts of the camera are wholly outside of the box, thereby enabling the focusing and adjustment of its parts without interference with the plate-holding end of the camera which is made a part of and within the dark room.

By my novel arrangement of means for clamping the exposed plate and the sensitized card or sheet by the springs 29 and 35, the operation of printing from the exposed and developed plates is greatly facilitated.

I claim:

1. A dark room having rigid inclosing walls, there being an opening formed in the forward wall, a fixed frame surrounding the opening, a camera of the bellows type arranged to be positioned wholly within said frame when folded, a cover for normally closing the opening and a plate-holder pivotally secured to the inner margins of said frame.

2. A dark room having an opening formed in its forward wall, a frame secured within the dark room embracing said opening, a plate-holder hinged to the inner margins of said frame, a camera of the bellows type positioned within the frame when folded, a cover for normally closing said opening and means carried by the cover for adjusting and holding the lens-carrying end of the camera in various positions relative to the plate-holder.

3. In a combined portable dark room and camera having an opening formed in its forward wall, a cover for normally closing said opening, a plate holder, a camera of the bellows type interposed when folded between the plate-holder and cover, there being an opening formed in the rear wall of the dark room, a flexible sleeve having an elastic end secured to the inner face of the rear wall of the dark room around said opening, a plate and sensitized sheet or card magazine positioned within the dark room, means for printing pictures operated from within the dark room and a tank open at its top suspended from the bottom of the dark room.

4. In combination with a portable dark room having rigid inclosing walls, one of which has an opening providing access to the interior of the dark room, a flexible sleeve surrounding said opening and there being an opening formed in the bottom of the dark room, a tank inserted through said opening and means for supporting the tank with its upper margins flush or nearly flush with the bottom of the dark room.

5. In combination with a dark room having rigid inclosing walls, one of which has an opening providing access to the interior of the dark room, a flexible sleeve surrounding said opening and there being an opening formed in the bottom of the dark room, a tank having a number of compartments arranged to be inserted through the opening and means carried by the tank for engagement with the bottom of the dark room for suspending the tank from the bottom of the dark room so that its upper margins will be flush or nearly flush with the bottom of the dark room.

6. In a dark room having an opening formed in its rear wall, a flexible sleeve embracing said opening, there being a second opening formed in the side wall of the dark room, a cover for normally closing said second opening, a leaf spring fixed to the inner wall of the dark room adjacent said second opening and a shutter hinged to said spring.

7. In a dark room having an opening formed in its rear wall, a flexible sleeve embracing said opening, there being a second opening formed in the side wall of the dark room, a removable frame positioned adjacent said second opening, a depression formed in said frame for receiving a plate, a leaf spring secured to the inner wall of the

dark room adjacent said second opening, a shutter hinged to said spring and clamping devices for engagement with said shutter when hinged upwardly.

8. In a combined portable dark room and camera, the combination of a box having an opening in its forward wall, a frame within the box embracing said opening, a plate-holder hinged to said frame, a cover for normally closing said opening, a camera of the bellows type interposed between said plate-holder and cover when folded, means for holding the cover in approximately a horizontal plane when open, means for supporting the lens-carrying end of the camera carried by the cover, means for securing the plate-holder to the frame embracing said opening, there being an opening formed in the rear wall of the dark room, a flexible sleeve embracing said opening, a plate and sensitized sheet or card magazine positioned within the dark room, spring-held doors hinged to said magazine, a tank supported from the bottom of the dark room with its body portion outside of the dark room, there being an opening formed in the side wall of the dark room, a cover for normally closing said opening and means secured to the inner wall, adjacent said opening, for securing a plate and sensitized sheet against the inner wall of the dark room around the margins of said opening.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

JOHN B. WILLYERD.

Witnesses:

LIZZIE E. WILLYERD,
ARTHUR J. PAUSCH.