

No. 643,004.

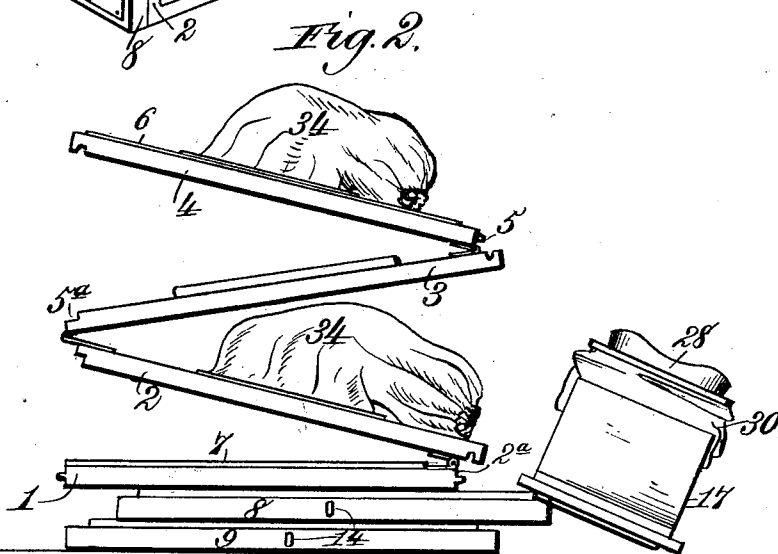
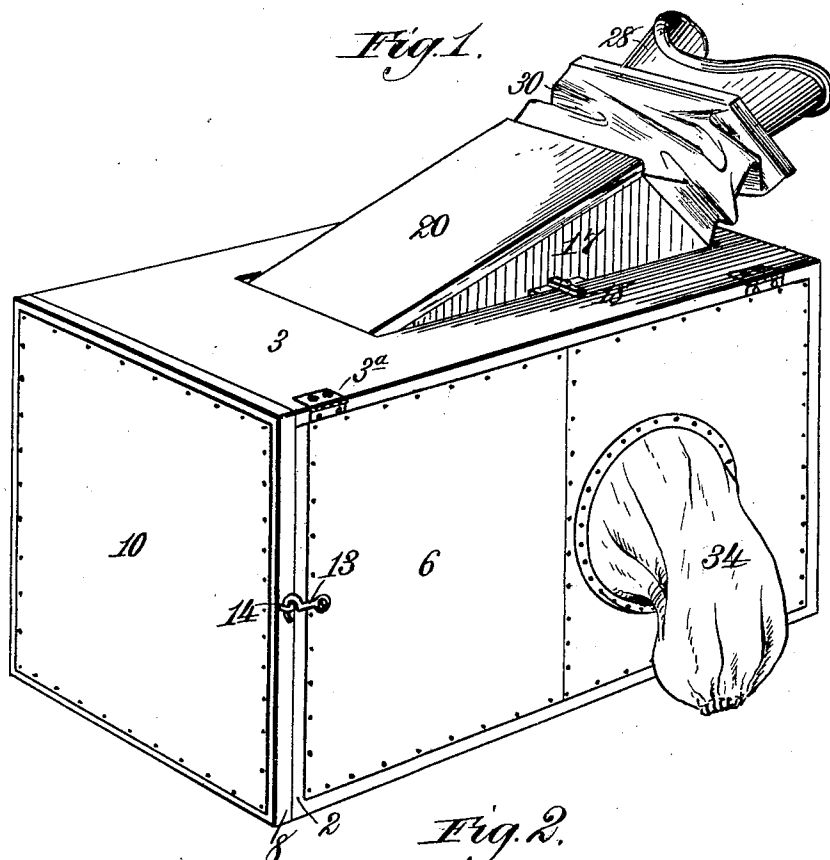
Patented Feb. 6, 1900.

B. W. REA & E. S. GREGORY.
PORTABLE PHOTOGRAPHIC DARK ROOM.

(Application filed Aug. 3, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.

Robert Everett

Dennis Sundry

Inventors,
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By *James L. Norris*

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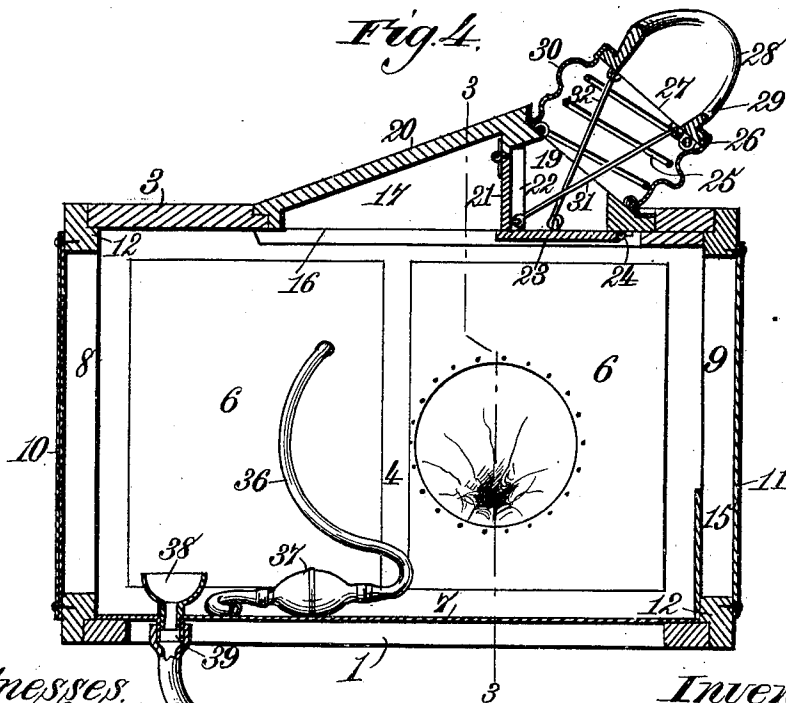
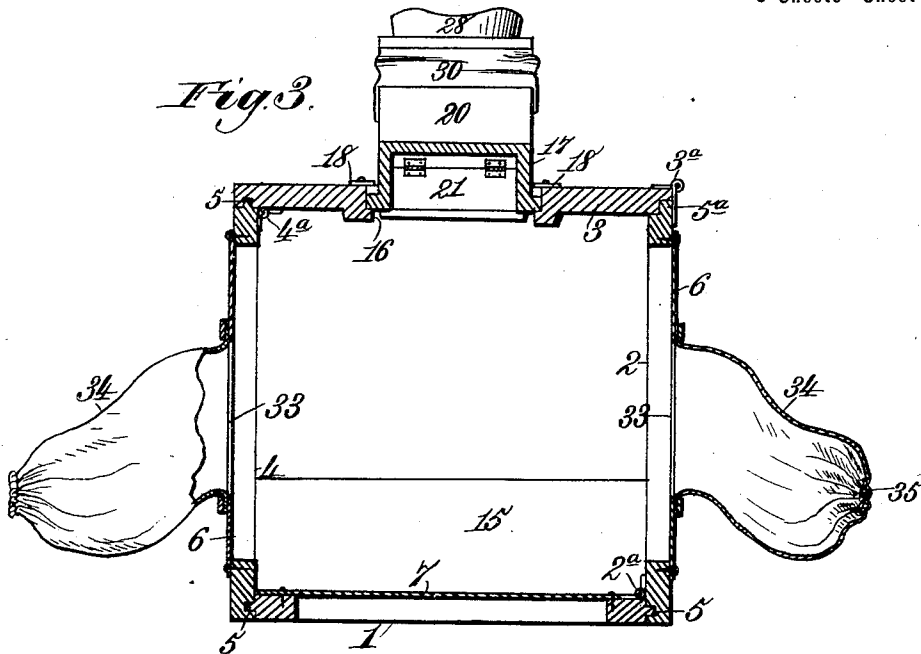
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Fig. 5.

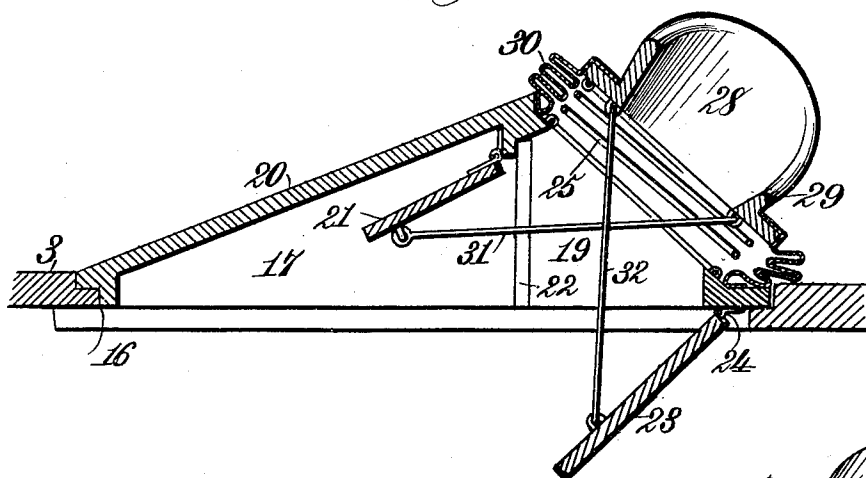
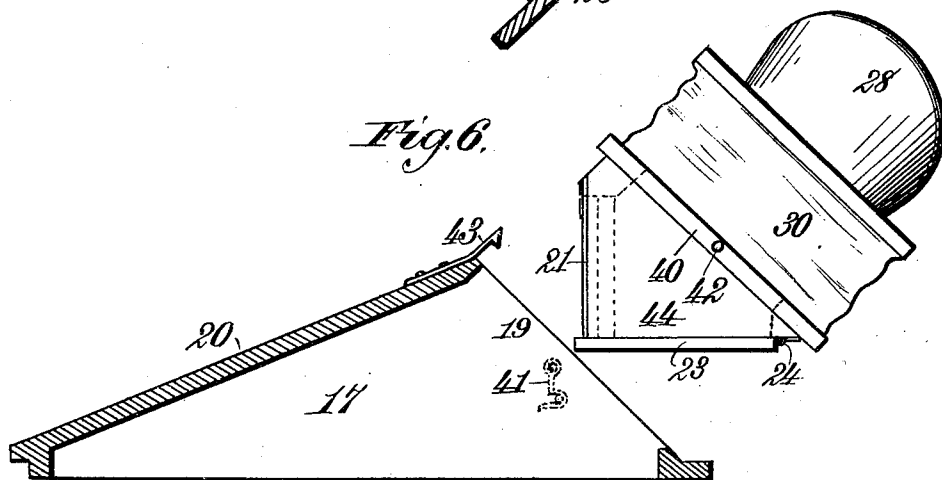


Fig. 6.



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UNITED STATES PATENT OFFICE.

BENJAMIN W. REA AND EDWARD S. GREGORY, OF GALLATIN, MISSOURI.

PORTABLE PHOTOGRAPHIC DARK ROOM.

SPECIFICATION forming part of Letters Patent No. 643,004, dated February 6, 1900.

Application filed August 3, 1899. Serial No. 726,027. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN W. REA and EDWARD S. GREGORY, citizens of the United States, residing at Gallatin, in the county of Daviess and State of Missouri, have invented new and useful Improvements in Portable Photographic Dark Rooms, of which the following is a specification.

This invention relates to portable photographic dark rooms, and has for its object to provide a simple and inexpensive dark room for photographic purposes that shall be light and capable of being folded up into compact form and into a small space.

It also has for its object to provide a dark room of the character described from which all white or injurious light shall be effectually excluded, whereby plates or films may be developed, washed, and fixed or loaded into plate-holders or cameras in plain view of the operator and with absolute safety.

Finally, it has for its object to improve and simplify the construction and render more efficient the operation of this class of dark rooms generally.

To these ends the invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a perspective view of our improved dark room set up in position for use. Fig. 2 is a similar view showing the eyepiece and ends detached and the box partially folded up. Fig. 3 is a transverse sectional view taken on the line 3 3 of Fig. 4. Fig. 4 is a vertical longitudinal sectional view of the box set up in operative position. Fig. 5 is a similar view of the eyepiece, showing the shutters open; and Fig. 6 is a view of a modified construction of the eyepiece.

In constructing the dark room a folding or knockdown box is provided, the body of which comprises a framework of wood hinged together and covered with rubber cloth in the manner which will now be described.

Referring to the drawings, the numeral 1 indicates the bottom of the box, to one edge

of which is hinged the lower edge of one of the sides 2 of the box. To the upper edge of the side 2 is hinged one edge of the top 3 of the box, to the opposite edge of which latter is hinged the upper edge of the remaining side 4. As shown, the hinges 2^a and 4^a are attached to the inner sides of the box, while the hinge 3^a is attached to its outer sides, whereby the side 2 is adapted to fold down upon the bottom 1 and the top 3 upon the side 2. The meeting edges of the top, bottom, and sides are tongued and grooved, as at 5, whereby when the box is set up in position for use the tongued and grooved edges match, and thus exclude the light at the joints. The meeting edges of the side 2 and top 3 are rabbeted, as at 5^a, whereby the light is excluded at this point when the box is set up for use. The sides 2 and 4 of the box are covered with black rubber cloth 6, while the bottom is lined with zinc, as at 7. In the ends of the box are fitted rectangular frames 8 and 9, the frame 8 in the rear of the box being covered on the outside with ruby fabric 10 and lined with orange-colored paper. This affords a perfectly safe light, to which the most sensitive plates and films may be exposed. The opposite end frame 9 is covered with rubber cloth 11. The inner edges of the frames 8 and 9 are rabbeted, as at 12, to fit light-tight in the ends of the box and are each secured in place by hooks 13, pivoted to the sides of the box and arranged to engage pins 14 in the edges of the end frames. The lower edge of the side 4 is in like manner secured to the bottom 1. On the inner side of the front end 9 of the box is formed a pocket 15, which serves the purpose of a receptacle for holding plate-holders and other articles which it may be necessary or desirable to manipulate in the interior of the dark room.

In the top 3 of the box is formed a rectangular aperture 16, in which is removably fitted light-tight a trunk or casing 17 and held in place therein by buttons 18, pivoted to the top of the box. As shown, the trunk or casing is open at its bottom and is also open at one end, as at 19. The top 20 of the trunk or casing is inclined downward or tapers off to nothing from its upper open end to the oppo-

site end. Arranged transversely in the trunk or casing is a shutter 21, which is hinged at its upper edge to upper edge of the top 20 and is adapted to close against vertical strips or battens 22, attached to the sides of the trunk. Another shutter 23 is hinged at one edge, as at 24, to the under forward edge of the trunk and is adapted to fold against the bottom of the latter and also against the bottom edge of the shutter 21, whereby the light is prevented from entering the dark room through the trunk. Attached to the edges of the open end of the trunk is one end of a coiled spring 25, the other end of which is attached to a rectangular piece of wood 26, having an oval-shaped aperture 27. About the aperture 27 is secured a correspondingly-shaped eyepiece 28, formed at its outer end to fit the face of the operator about the eyes and nose, as at 29, and preferably lined or covered with a soft and pliant textile or other suitable fabric. As shown, the convolutions of the spring 25 are preferably rectangular in shape, and about said spring is disposed a bellows 30, one end of which is attached to the board 26, carrying the eyepiece, and the other end is fitted and secured over the open end of the trunk. The coiled spring thus operates to normally hold the bellows extended. Attached to the opposite and upper edges of the eyepiece-board 26 are two wires or rods 31, the opposite ends of said rods being pivotally attached to the lower portion of the vertical shutter 21. Similar rods 32 are in like manner attached to the lower portion of the eyepiece-board and at their opposite ends to the free edge portion of the horizontal shutter 23. The construction and arrangement are such that while the bellows is held extended by the coiled spring the rods 31 and 32 hold the shutters closed to exclude the light from the dark room; but when the operator places his eyes to the eyepiece and forces the latter downward to collapse the bellows the rods operate to swing the shutter 21 up against the bottom of the trunk and the shutter 23 down to an approximately vertical position, thus affording the operator an unobstructed view of the interior of the dark room, as will be more fully hereinafter referred to. In one end of each of the sides 2 and 4 is formed a circular aperture 33, about which is secured one end of a black-rubber-cloth sleeve 34, the opposite end of said sleeve being effectually closed by an elastic band 35. When the dark room is not in use, the elastic bands close the ends of the sleeves in such manner as to thoroughly exclude the light, and when the dark room is being used for developing or changing plates or films and similar operations the operator inserts his hands through the sleeves into the interior of the dark room. The elastic bands will then clasp the ends of the sleeves about the operator's wrists, excluding the light and leaving the operator's hands perfectly free for handling the trays and chem-

icals, manipulating the plates and films, and performing the other necessary operations.

Passing through one of the sides of the box, as 2, is a rubber tube 36, one end of which may be immersed in a vessel of water, and the opposite or inner end of said tube is provided with an elastic bulb or pump 37 of ordinary and well-known construction, by means of which water may be pumped up from the vessel and sprayed or discharged onto the plates or films or into the trays. A drain-cup 38 is arranged in the lower portion of the dark room and is detachably lifted at its lower end on a tube 39, that extends through the bottom 1. A flexible tube may, if desired, be fitted to the lower end of the tube 39 and lead to any convenient receptacle for receiving the waste water or chemicals.

The operation of the improved dark room constructed as above described is as follows: The box is first set up in position in the manner described and the tube 36 immersed in a suitable receptacle of water. The end 9 of the box is next removed and the trays, chemicals, and plate-holders placed in the box and the end 9 replaced and securely fastened in place. All light save that transmitted through the ruby fabric and orange-colored paper is effectually excluded from the interior of the dark room, for the ends of the sleeves are closed tight by the elastic bands and the shutters 21 and 23 are held closed in the manner before described. The dark room is now in readiness for developing, washing, and fixing the negatives. The operator inserts his hands into the dark room through the sleeves and applies his eyes to the eyepiece. Then by pressing against the latter he collapses the bellows and opens the shutters, thus giving him an unobstructed view of the interior of the dark room. Owing to the inclination of the trunk and eyepiece the operator is enabled to look directly down upon the plate, which rests on the bottom of the box between the operator's eyes and the ruby light. When the shutters are in the position referred to, the light is prevented from entering the dark room through the trunk, owing to the fact that the outer end of the eyepiece fits the face of the operator and prevents the light from entering the eyepieces. The operator's hands are left perfectly free to perform the necessary operations, whereby the negatives may be removed from the plate-holders or camera, placed in the developing-tray, and the latter rocked until the development has been carried as far as desired, after which the bulb or pump may be operated to spray the negatives to wash them, and the latter finally deposited in the sodium-thiosulfate bath to fix them, and upon the completion of the last-named operation the negatives may be safely removed and washed. In a similar manner the dark room may be employed for loading or charging plate-holders and cameras with plates or films or per-

forming other operations which can only safely be carried on in ruby or other similar light.

The entire device may be folded up when not in use into a very compact form and small space. To fold up the dark room, the trunk is first removed from the top and the ends 8 and 9 next removed, after which the side 2 is folded down flat on the bottom. The top 3 is next folded back and down upon the side 2, and the side 4 then folded down upon the top. The ends 8 and 9 may be then laid upon the folded parts and the trunk deposited upon the ends. When folded and packed in this manner, the parts may be secured together in any convenient or preferred manner.

In Fig. 6 is illustrated a slightly-modified construction of eyepiece that is designed to permit the latter to be detached and folded up into small compass for transportation. As shown in said figure of drawings, instead of hinging the shutters 21 and 23 to the trunk a frame is provided, comprising a rectangular sash 40, adapted to be seated flush against the open end 19 of the trunk 17 and is removably secured thereto by hooks 41, pivoted to the sides of the sash and arranged to engage pins 42 on the ends of the trunks and by a spring-catch 43 of ordinary or any suitable construction attached to the top of the sash. Attached to the edges of the sash are two triangular sides 44. To the edges of the sash is attached the end of the bellows 30. As shown, the shutter 21 is hinged to the upper edge of the sash and the shutter 23 is hinged to the opposite lower edge of the same. In all other respects the construction is the same as that before described. By means of the modified construction described the eyepiece may be removed from the trunk and packed away with the other parts of the device for transportation.

Having described the invention, what is claimed is—

1. A dark room, comprising a box having an aperture therein, shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the outer end of the bellows, means for extending the bellows, and means operating when the bellows is collapsed to close the shutters, substantially as described.

2. A folding dark room comprising a box having a top and bottom, sides each hinged at its upper edge to one of the side edges of the top, one of said sides being hinged at its lower edge to one edge of the bottom, means for detachably connecting the lower edge of the other side to the opposite edge of the bottom, whereby said sides and top are adapted to fold down flat alternately upon one another and upon the bottom, and rigid end pieces constructed to be removably fitted in the open ends of the box and thereby hold the hinged sides and top in position, substantially as described.

3. A folding dark room comprising a box having hinged bottom, sides and top arranged to be folded flat upon one another when not in use, removable end pieces detachably fitted in the open ends of the box, said top having an aperture therein, shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the outer end of the bellows, means for extending the bellows, and means operating when the bellows is collapsed to close the shutters, substantially as described.

4. A folding dark room comprising a box having hinged bottom, sides and top arranged to be folded flat upon one another when not in use, removable end pieces detachably fitted in the open ends of the box, said top having an aperture therein, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and connections between the eyepiece and shutters operating when the eyepiece is depressed to open the shutters, substantially as described.

5. A folding dark room comprising a box having hinged bottom, sides and top arranged to be folded flat upon one another when not in use, removable end pieces detachably fitted in the open ends of the box, said top having an aperture therein, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and rods pivotally connected at their respective ends to the shutters and eyepiece and operating to open the shutters when the eyepiece is depressed, substantially as described.

6. A portable dark room comprising a box, a trunk or casing fitted in the top of the box and provided with an aperture at one end, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and means operating when the bellows is collapsed to close the shutters, substantially as described.

7. A portable dark room comprising a box, a trunk or casing fitted in the top of the box and provided with an aperture at one end, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and rods connected to the eyepiece and to said shutters and operating to open the latter when the eyepiece is depressed, substantially as described.

8. A portable dark room comprising a box having an aperture in its front end covered with translucent non-actinic material, a rearwardly-inclined trunk or casing removably fitted in the top of the box and provided with an aperture in its rear end, hinged shutters

operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and means operating when the bellows is collapsed to close the shutters, substantially as described.

5

In testimony whereof we have hereunto set

our hands in presence of two subscribing witnesses.

BENJAMIN W. REA.
EDWARD S. GREGORY.

Witnesses:

CLIFTON PENN,
J. W. MEADE.