No. 889,262. PATENTED JUNE 2, 1908.

D. D. ROUTH.

PHOTOGRAPHIC APPARATUS.

APPLICATION FILED MAR. 9, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

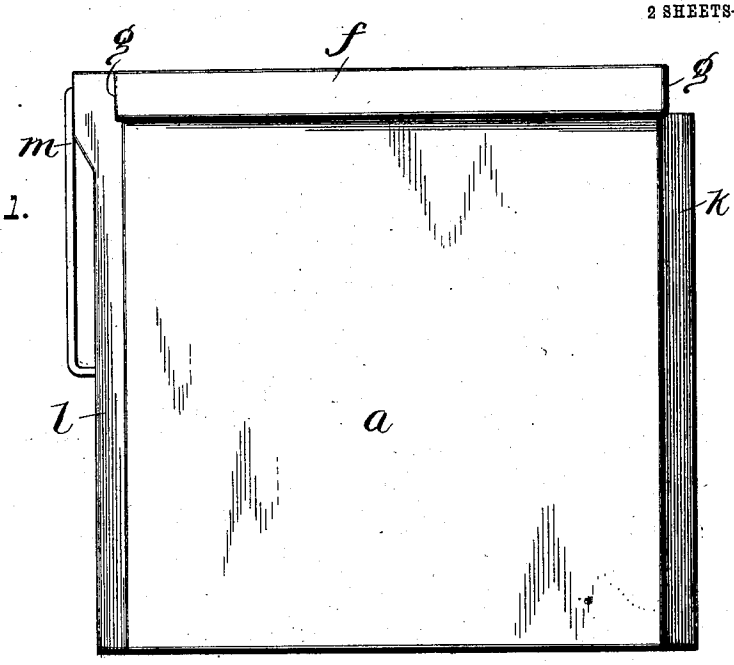
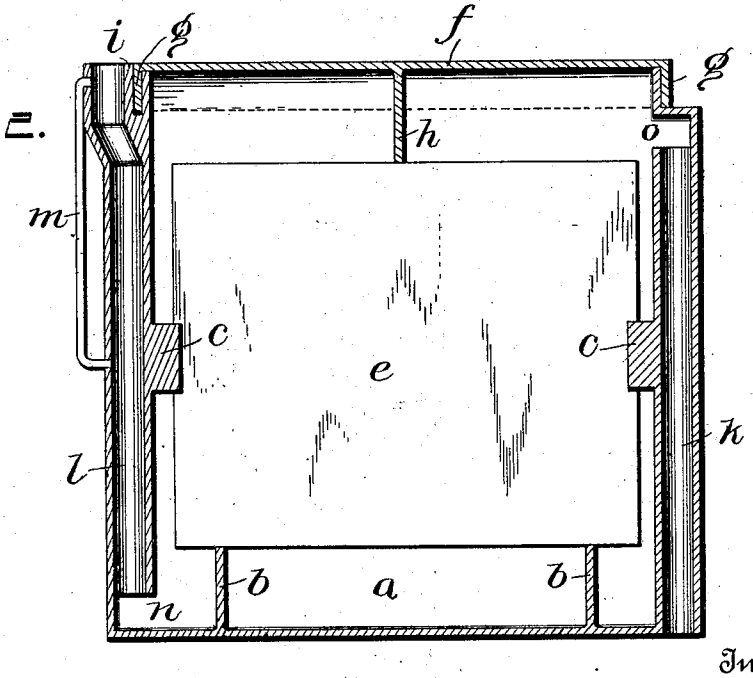


Fig. 2.



Witnesses
W. Mack Durall.
A. W. Neale Jr.

Inventor
D. D. Routh.
By Wilkinson & Fisher,
Attorneys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 3.

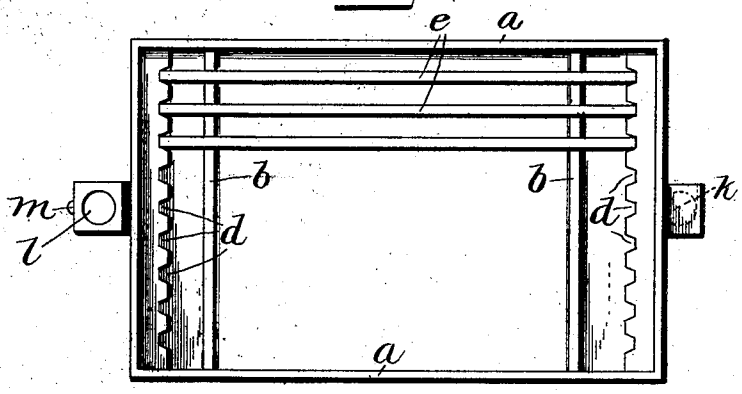


Fig. 5.

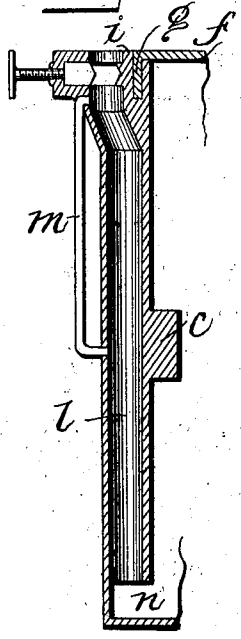


Fig. 4.

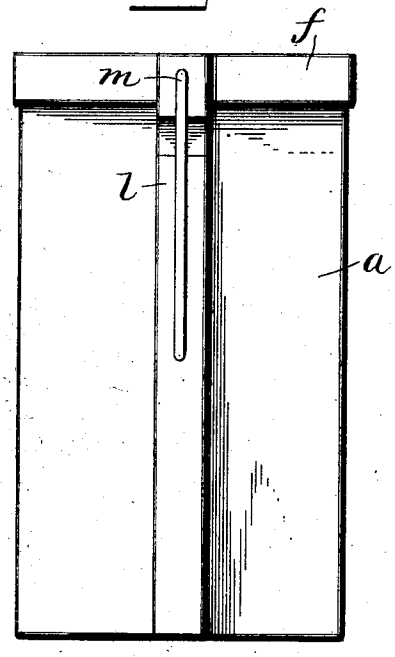
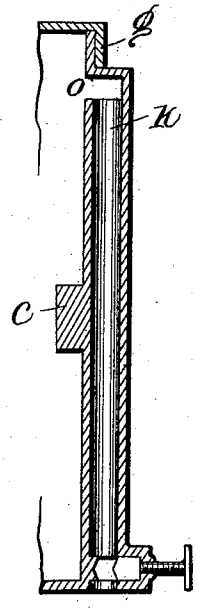


Fig. 6.



Witnesses
W. Mayo Durall.
A. W. Neale Jr.

Inventor
D. D. Routh.
By Wilkinson & Fisher
Attorneys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DAVID DUNLOP ROUTH, OF PETERSBURG, VIRGINIA.

PHOTOGRAPHIC APPARATUS.

No. 889,262. Specification of Letters Patent. Patented June 2, 1908.

Application filed March 9, 1907. Serial No. 361,531.

To all whom it may concern:

Be it known that I, DAVID DUNLOP ROUTH, a citizen of the United States, residing at Petersburg, in the county of Dinwiddie and State of Virginia, have invented certain new and useful Improvements in Photographic Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in photographic apparatus, and the object of my invention is to provide a simple box for the developing and fixing of photographic plates or cut films, hereinafter referred to as sensitized carriers, and without the use of a dark room, further than the first removal of the plates or films from the plate holders to the box.

With this object in view, my invention consists in the construction and combinations of parts as hereinafter described and claimed.

In the accompanying drawings:—Figure 1 is a side elevation of my apparatus. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is a top plan view with the cover removed, and Fig. 4 is an end view of the same. Figs. 5 and 6 are detail views of the inlet and outlet tubes showing valves for preventing the admission of light and the exit of fluid when the box is inverted.

The apparatus consists of a box *a*, shown rectangular in the drawings, but it may be of any desired shape. This box is provided with ribs *b*, near the bottom thereof, upon which the plates or films may rest, but instead of said ribs any equivalent means placed at the proper height from the bottom of the box may be used. It is necessary that the plates, films or sensitized carriers should be supported some little distance above the bottom of the box in order to afford a free passage therearound for the developing liquid, and also for the settling of any sediment away from the plates or films. Across the sides of the box, and near the centers thereof, are guides *c*, oppositely located with respect to each other, and provided with slots or grooves *d*.

e represents sensitized carriers, films or plates which are of the right size to fit within said grooves and rest upon the ribs *b* at the bottom thereof.

f represents the cover of the box, made, of course, to conform to the shape of the box itself, and provided on each side and end with a down-turned lip, such as *g*. These lips may fit the box in any suitable manner but that shown, is preferred. It is also provided with one or more downwardly-extending ribs *h* which are adapted to rest on the top of the sensitized carriers and hold them firmly in position when the box is shaken or inverted. Preferably the box has an extension *i* along one end thereof provided with a groove in which the downwardly-projecting end *g* of the top *f* engages.

k represents a discharge tube which I have shown as outside the box proper, although it might otherwise be suitably located.

l represents an inlet pipe for the developing fluid, and *m* represents a gage glass, so that the height of the liquid in the box may be readily ascertained. The box is provided with an inlet *n* leading from the tube *l*, and an outlet *o* leading into the tube *k*. The inlet and outlet tubes may be round or square.

In operation, the apparatus is used as follows:—The cover being removed, the sensitized carriers are inserted in the box in a dark room, or by the use of a transfer or changing bag, and the cover then replaced. The box is then taken into the light, and the developing liquid is poured, by means of a funnel, through the pipe *l* into the box, until the plates are entirely covered. The ends of the tubes *l* and *k* are then closed either by stoppers or valves, as the case may be, to prevent the possible admission of any light to the plates, and also to prevent the spilling of liquid when the box is inverted; the development being then allowed to continue until finished, the box being inverted from time to time to insure no air bubbles forming nor sediment settling on the plates. After the plates have become developed, the liquid is allowed to run out through the outlet pipe *k*. The fixing solution is then poured in in the same way, and after being poured out, the plates can be thoroughly washed by running water through the boxes by the same tubes.

Instead of using stoppers for the tubes *l* and *k*, I may use a valve in each tube, as shown in Figs. 5 and 6. These valves are of the ordinary construction and need no further description.

The parts are so fitted that when the cover is on, the tubes *l* and *k* stopped up, by either valves or stoppers the apparatus is liquid-tight, and furthermore, no light can enter

the apparatus; and even while the liquid is being poured in through the inlet tube *l*, not enough light can get in through this tube or through the outlet tube *k* to injure the plates or films.

It will be observed that I can pour into my box the developing fluid in the light, and keep it there as long as desired, and since I may use a valve in each tube, no light whatever is able to get in, either during the pouring process or at any other time, nor is there any danger of the liquid escaping when the box is inverted.

It will be further observed that by inverting the apparatus I not only insure a good contact between the fluid and plates, but I also sweep away any air bubbles that may exist or form on the same, and also, by providing the ribs on the top and bottom of the box, I supply a receptacle to receive all the fine black sediment that otherwise might settle or stick on the sensitized carriers, and thereby further insure a more perfect development in this class of devices.

While I have thus described my apparatus, I wish it to be distinctly understood that I do not limit myself to the exact details shown and described, as these could be varied considerably without departing from the spirit of my invention.

I claim:—

1. In a photographic apparatus, the combination of a box having on its interior means for supporting sensitized carriers, and also provided with an inlet and an outlet, and a cover therefor adapted to fit over the top of said box and provided with means engaging the edges of said carriers and holding the same spaced from the top, substantially as described.

2. In a photographic apparatus, the combination of a box provided with an inlet tube and an outlet tube oppositely located thereon, and having means on the interior of said box for supporting sensitized carriers, and a cover adapted to fit over the top of said box, said cover having a projecting rib adapted to contact with the upper edges of the said carriers and provide a receptacle for sediment when the box is inverted, substantially as described.

3. In a photographic apparatus, the combination of a box having supporting means for the sensitized carriers on its bottom, and guiding means on its sides, and provided with an inlet tube and an outlet tube, and a cover adapted to fit over the top of said box, said cover being provided with a downwardly-projecting rib adapted to engage the top of said carriers and provide a receptacle for sediment when the box is inverted, substantially as described.

4. In a photographic apparatus, the combination of a box provided with ribs on its bottom, and grooved ribs on its sides, and with an inlet tube and an outlet tube, and a cover adapted to fit over the top of said box, said cover having a downwardly-projecting rib adapted to contact with the top of the sensitized carriers held in said box and to provide a receptacle for sediment when the box is inverted, substantially as described.

5. In a photographic apparatus, the combination of a box provided with ribs on its bottom and grooved ribs on its sides, and with an inlet tube and an outlet tube, and with a groove along one side thereof, a cover adapted to fit over the top of said box in said groove, said cover being provided with a downwardly-projecting rib adapted to engage the top of the sensitized carriers, thereby providing a receptacle for sediment when the box is inverted, and a gage glass, whereby the level of the liquid in the box may be observed substantially as described.

6. In a photographic apparatus, the combination of a box provided with ribs on its bottom and grooved ribs on its sides, and with an inlet tube and an outlet tube provided with valves for closing the same, and with a groove along one side thereof, a cover adapted to fit over the top of said box and in said groove, said cover being provided with a downwardly-projecting rib adapted to engage the top of the sensitized carriers, thereby providing a receptacle for sediment when the box is inverted, and a gage glass, whereby the level of the liquid in the box may be observed substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

DAVID DUNLOP ROUTH.

Witnesses:
E. M. BARKSDALE,
F. B. HITE.