

No. 728,743.

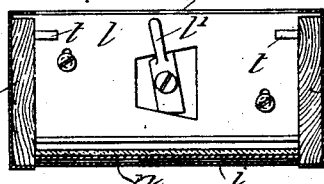
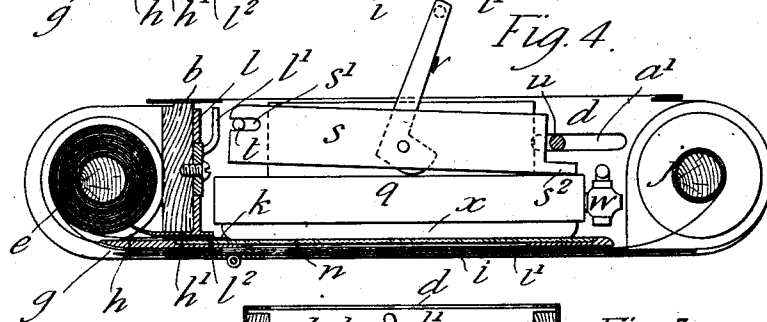
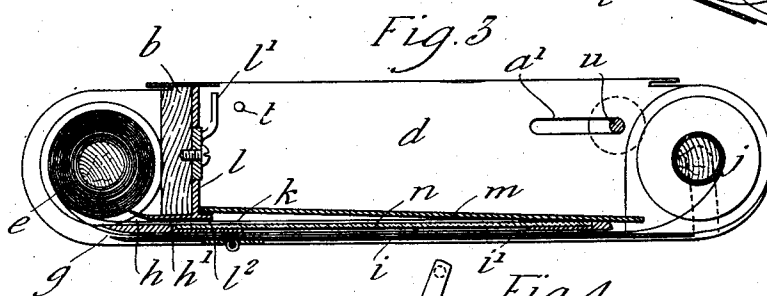
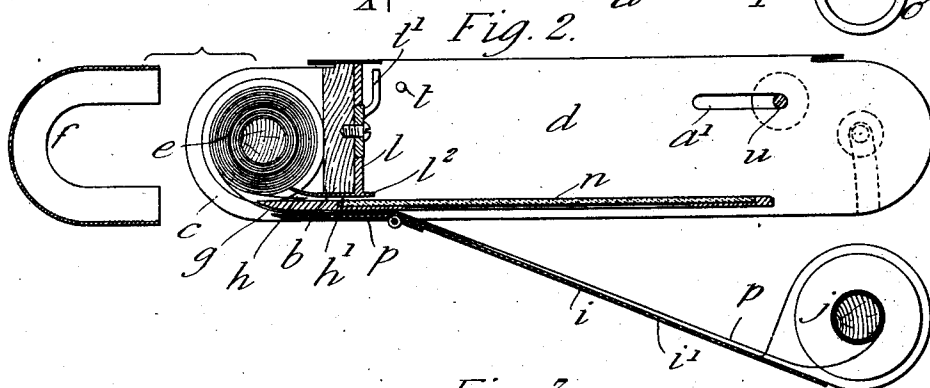
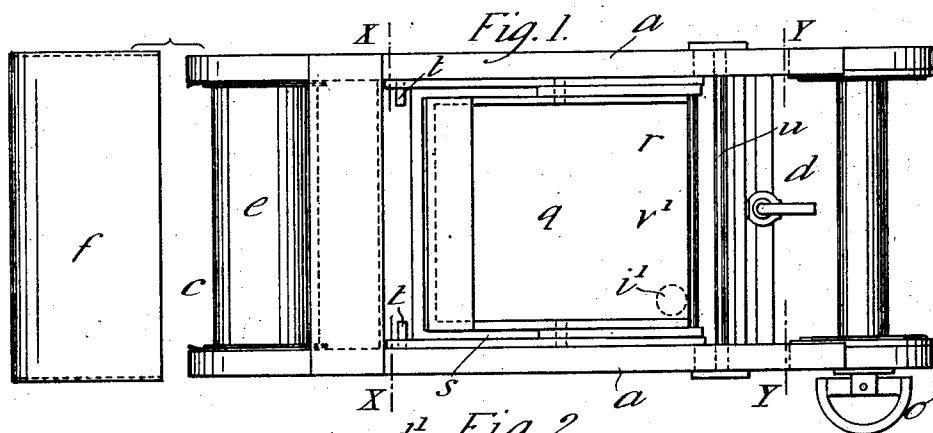
PATENTED MAY 19, 1903.

J. W. MEEK.
PHOTOGRAPHIC DEVELOPING APPARATUS.

APPLICATION FILED JAN. 2, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
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Wm. Stocking

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James W. Meek
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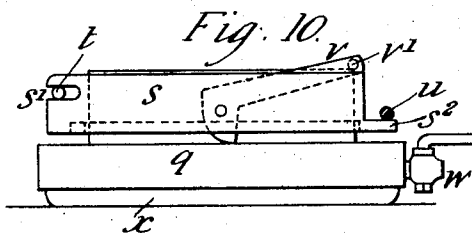
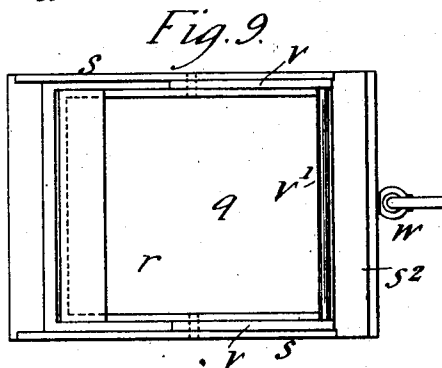
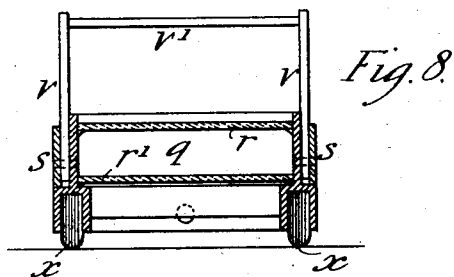
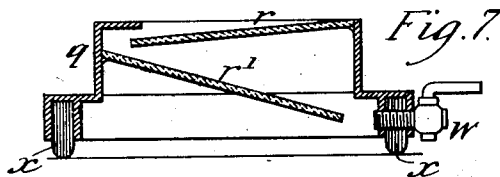
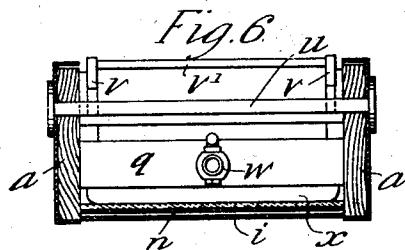
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UNITED STATES PATENT OFFICE.

JAMES WYNDHAM MEEK, OF STROUD GREEN, LONDON, ENGLAND.

PHOTOGRAPHIC DEVELOPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 728,743, dated May 19, 1903.

Application filed January 2, 1903. Serial No. 137,591. (No model.)

To all whom it may concern:

Be it known that I, JAMES WYNDHAM MEEK, a citizen of England, residing at 32 Albert road, Stroud Green, in the county of London, England, have invented certain new and useful Improvements in Photographic Developing Apparatus, (for which I have made application for a patent in Great Britain, No. 17,911, dated August 14, 1902, and application for patent in Germany, dated August 27, 1902,) of which the following is a specification.

My invention has for its object the construction of portable apparatus of small dimensions constituting a dark chamber in which the developing of photographic impressions is carried on in such manner that the progress of the development can be observed outside the closed apparatus as the process is going on and can thus be kept under complete control.

For this purpose the apparatus consists of a casing of some material impenetrable to actinic rays divided into two compartments by a partition. In one of these compartments is placed the roll of exposed films, while at the end of the other compartment is a reel on which the black-paper backing of the films is wound. The winding operation feeds the film under a removable opaque shutter into the vacant space of the second compartment, the floor of which consists of a sheet of ruby glass or the like. A separate developing-box, having no bottom and a top consisting of ruby glass, is introduced into this space, and means are provided for clamping it so as to form a liquid-tight chamber provided with means for introducing and expelling developing or other liquids.

In the accompanying drawings, Figure 1 shows a plan of the complete apparatus. Figs. 2, 3, and 4 are longitudinal sections showing the several parts in different positions corresponding to the several operations required for carrying out the method of operating. Figs. 5 and 6 are cross-sections on lines XX and YY, Fig. 1. Figs. 7, 8, 9, and 10 show detached views of the developing-box.

The apparatus consists of a casing *a*, divided by a partition *b* into two compartments *c* and *d*. The compartment *c* serves to receive a spool *e* of film-exposures, after the introduc-

tion of which it is closed light-tight by a cap *f*, which may either be entirely removable, as shown, or be arranged to open upon a hinge. The compartment *d* constitutes part of the developing-chamber, as will be presently explained, and has its floor *n* made of ruby-tinted glass.

In the compartment *c* are provided two slots *g* and *h*, of which *g* serves for the passage of the black-paper wrapping of the roll-film, which is passed through it to the outside of the compartment *d*, as shown at *p*, Fig. 2, and along a plate *i*, hinged to the back thereof, the end of which plate carries a winding-reel *j*, to which the black paper is connected. For this purpose the plate *i* with the reel *j* is turned down on its hinge, as shown at Fig. 2, and when the paper has been attached to the reel, the plate is closed up against the back of the casing *a*, as at Fig. 3. The second slot *h* of compartment *c* serves for the passage of the film *k* into the interior of the compartment *d*, as shown. The plate *h'* of the slot *h* forms part of a shutter *l*, capable of sliding up and down to a slight extent against the partition *b*, being moved by a cam-lever *l'*, so as first to raise the shutter and plate *h'* sufficiently to allow the film *k* to pass freely through the slot *h* into the compartment *d*, after which the shutter is closed down, as at Fig. 4, so as to close the slot *h* light-tight. Before the film is passed through the slot *h* into compartment *d* a second shutter *m* is placed in the latter, so as to lie upon a ledge *l''* of shutter *l*, and thus to leave a narrow space between *m* and the floor *n* of compartment *d*, into which the film can pass without being exposed to the light and which prevents it from curling up as it passes along.

The shutter *m* having been placed in position and the hinged back plate *i* with reel *j* being closed up, as at Fig. 3, the reel is rotated by means of an external handle *o*, so as to wind up the black paper *p*. By thus drawing the paper from the roll *e* this is rotated, thereby causing the film *k* to pass into the slot *h* and thence along the space between the shutter *m* and the floor *n*. When a film-section has thus been brought into proper position in the compartment *d*, this will be indicated by the appearance of the number of such film-section marked on the black paper

p behind a hole *i*' in the hinged plate *i*. The film-section is then developed by the following means: A box or tank *q* (shown in position in plan at Fig. 1 and in side view at Fig. 4 and in plan separate at Fig. 9 and end view at Fig. 6 and also in longitudinal and cross sections at Figs. 7 and 8) is placed upon the shutter *m*. This box has its upperside closed by two plates *r r'*, of ruby-tinted glass, the upper one, *r*, of which is arranged so as to leave an opening between its right-hand end and the end of the box *q*, while the lower one, *r'*, is fixed to the box at that end and leaves an opening at the left-hand end between it and the box. The bottom of the box is open and its rim is provided with a caoutchouc cushion *x*, that is adapted to bear upon the film-section, so as when pressed down thereon to make a water-tight joint therewith. The box having been placed upon the shutter *m*, the latter is withdrawn from the right-hand end of the compartment *d*, thereby causing the box to drop down upon the film-section, as shown in rear elevation at Fig. 10, the film-section being completely covered thereby.

A frame *s* (shown in side view at Figs. 4 and 10 and in plan at Fig. 9) is then placed upon the projecting flange of the box *q* and is secured to the casing *a*, as shown at Fig. 10, first, by engaging with notches at *s'* with pins *t*, projecting from the inner sides of the casing, and, secondly, by a transverse bar *u*, carried in slots *a'* of the casing which is slid over the projecting flange *s*² of the frame after this has been placed in position.

To the sides of the frame are pivoted cam-shaped levers *v v*, connected together by a bar *v'*, which when the frame *s* has been fixed in position as described are turned down from the position shown at Fig. 4 into that shown at Fig. 10, thereby pressing the box with its caoutchouc cushion firmly down upon the film. The developing fluid is now poured onto the glass top of the box, whence it finds its way through the before-mentioned openings into the interior and in contact with the film-section, the negative of which is consequently developed.

During the developing process the operator can readily watch its progress by first turning down the plate *i*, together with the black paper *p* and reel *j*, and then holding the apparatus up to the light, when the condition of the negative can be observed through the ruby-tinted glass of the box and that of the floor *n* of the compartment *d*. When the development is completed, the operator opens a small cock *w* at the end of the box and runs off the developing fluid, after which the clamping-frame *s* is removed and the box is taken off the developed film-section, which is then separated from the roll by cutting with a knife along the edge of flange *l*² of the shutter *l*. The apparatus is now ready for developing another film-section by repeating the several above-described operations.

A casing is provided similar in form to the

cap *f* to be slid onto the other end of the apparatus, so as to inclose the compartment *d* with the box *q*, plate *i*, and reel *j* when the apparatus is not in use.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

1. In apparatus for developing photographic negatives the combination of a chamber for containing the undeveloped roll-film closed light-tight by a removable cap, an open trough-shaped chamber whose bottom is of ruby glass communicating with the roll-film chamber by a slot through which the film to be developed is passed from the latter into the former, a box open on one side and having ruby glass on the opposite side, adapted to be pressed down fluid-tight with its open side against the film in the trough-shaped chamber, a clamping device for pressing the box against the film and bottom of said chamber, and means for introducing developing liquid into and removing same from said box when pressed down on the film, substantially as described.

2. In apparatus for developing photographic negatives the combination of a chamber for containing the undeveloped roll-film closed light-tight by a removable cap, an open trough-shaped chamber whose bottom is of ruby glass communicating with the roll-film chamber by a slot through which the film to be developed is passed from the latter into the former, a removable plate adapted to be supported in the trough so as to cover the film as it passes into the trough, and adapted to be withdrawn subsequently, a box open on one side and having ruby glass on the opposite side adapted to be pressed down fluid-tight with its open side against the film in the trough, on the withdrawal of said plate, means for clamping said box against the film, and means for introducing developing fluid into and removing it from the box, substantially as described.

3. In apparatus for developing photographic negatives, the combination of a chamber for containing the undeveloped roll-film closed light-tight by a removable cap, and provided with a slot through which the cover of the roll-film is adapted to be passed, an open trough-shaped chamber whose bottom is of ruby glass communicating with the roll-film chamber by a slot through which the film to be developed is passed from the latter into the former, a flap hinged to the back of said trough-shaped chamber adapted to lie flat against the same and provided with an aperture for inspection of the position of the film-backing relative to the developing-chamber, a winding-reel on the free end of said flap adapted to wind up said paper cover, a box open on one side and having ruby glass on the opposite side, adapted to be pressed down fluid-tight with its open side against the film in the trough-shaped chamber, a clamping device for pressing the box against the film and

bottom of said chamber, and means for introducing developing liquid into and removing same from said box when pressed down on the film, substantially as described.

5 4. In apparatus for developing photographic negatives, the combination of a chamber for containing the undeveloped roll-film closed light-tight by a removable cap, and provided with a slot through which the cover
10 of the film is adapted to be passed, an open trough-shaped chamber whose bottom is of ruby glass communicating with the roll-film chamber by a slot through which the film to be developed is passed from the latter into
15 the former, a flap hinged to the back of said trough-shaped chamber adapted to lie flat against the same, and provided with an aperture for inspection of the position of the film backing relative to the developing-chamber,
20 a winding-reel on the free end of said flap adapted to wind up said paper cover, a removable plate adapted to be supported in the trough so as to cover the film as it passes into the trough, and adapted to be withdrawn
25 subsequently, a box open on one side and having ruby glass on the opposite side adapted to be pressed down fluid-tight with its open side against the film in the trough, on the withdrawal of said plate, means for clamping said
30 box against the film, and means for introducing developing fluid into and removing it from the box, substantially as described.

5 5. In apparatus for developing photographic negatives the combination of a chamber for containing the undeveloped roll-film closed light-tight by a removable cap, an open trough-shaped chamber whose bottom is of
35 ruby glass communicating with the roll-film chamber by a slot through which the film to be developed is passed from the latter into the former, a shutter adapted to close said slot light-tight after the film has been passed into the trough-shaped chamber, a removable

plate adapted to be supported in the trough so as to cover the film as it passes into the
45 trough, and adapted to be withdrawn subsequently, a box open on one side and having ruby glass on the opposite side adapted to be pressed down fluid-tight with its open side
50 against the film in the trough, on the withdrawal of said plate, means for clamping said box against the film, and means for introducing developing fluid into and removing it from the box, substantially as described.

6. In apparatus for developing photographic negatives, the combination of a chamber for containing the undeveloped roll-film closed light-tight by a removable cap, an open trough-shaped chamber whose bottom is of
60 ruby glass communicating with the roll-film chamber by a slot through which the film to be developed is passed from the latter into the former, a box open on one side and having ruby glass on the opposite side, adapted to be pressed down fluid-tight with its open
65 side against the film in the trough-shaped chamber, a clamping device for pressing the box against the film and bottom of said chamber, consisting of a loose frame fitting over said box above a flange thereon and adapted
70 to engage at one end with projections on the sides of said trough and at the other end under a sliding bar in the trough, and cam-shaped levers pivoted to said frame and adapted to press the frame against the film, and
75 means for introducing developing liquid into and discharging same from said box, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 80

JAMES WYNDHAM MEEK.

Witnesses:

JOSEPH MILLARD,
EDWARD GARDNER.