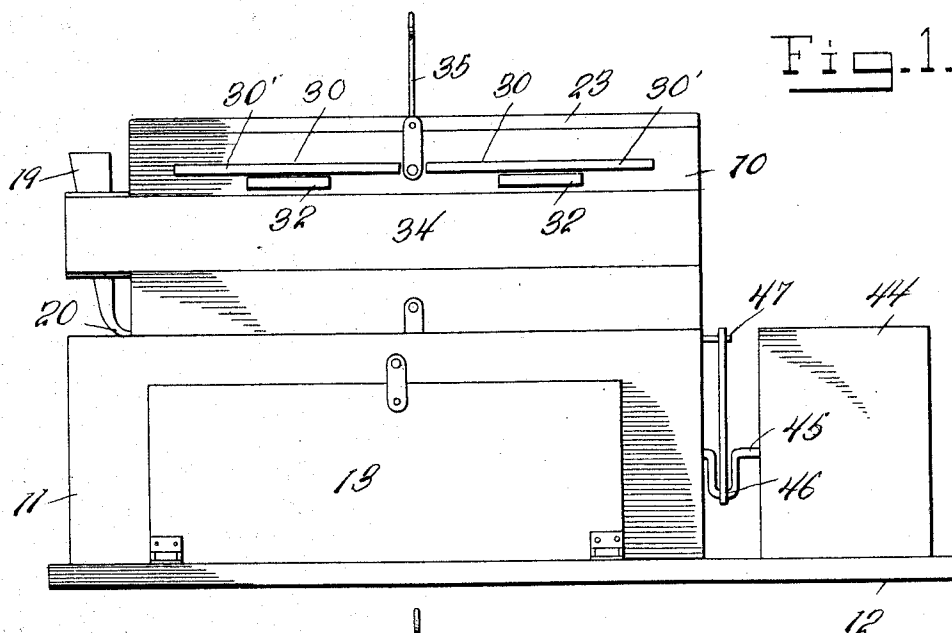
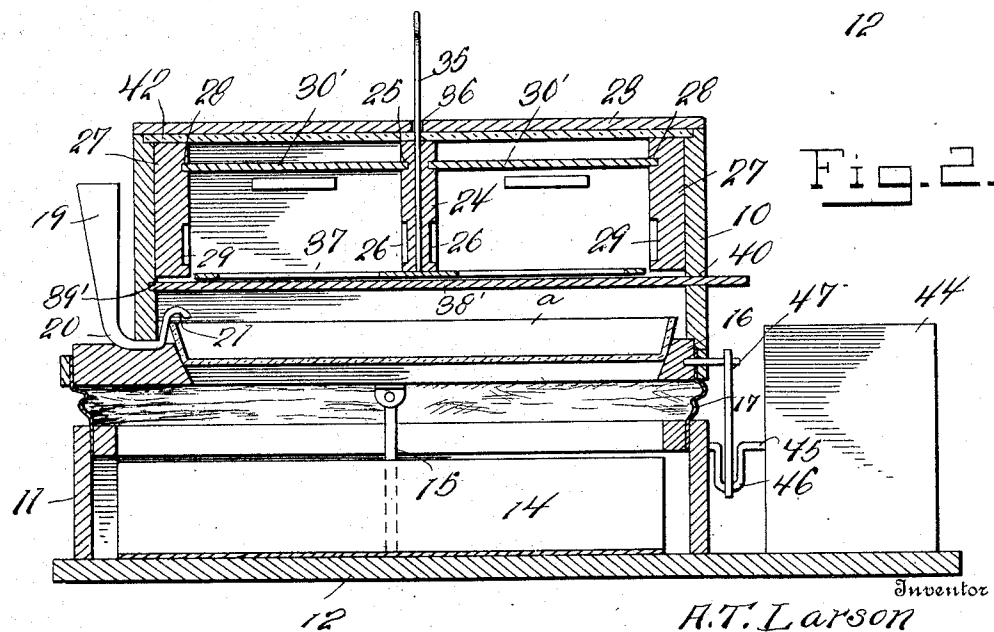


No. 885,492.

PATENTED APR. 21, 1908.

A. T. LARSON.
DEVELOPING MACHINE.
APPLICATION FILED APR. 18, 1906.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 3.

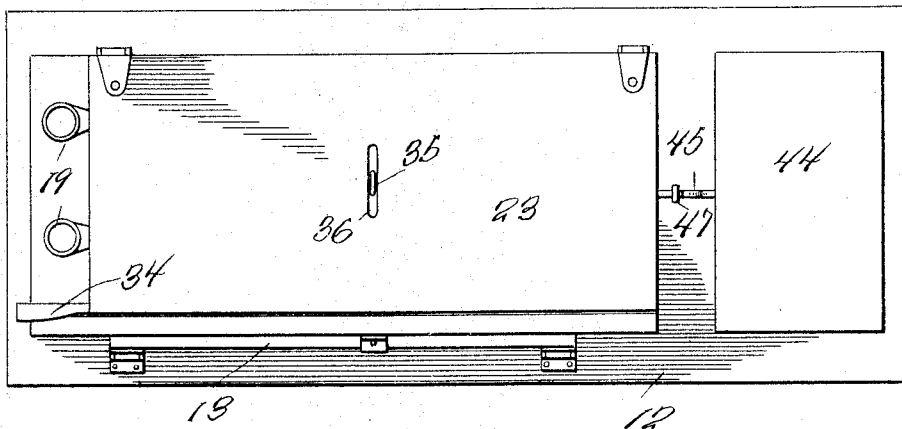
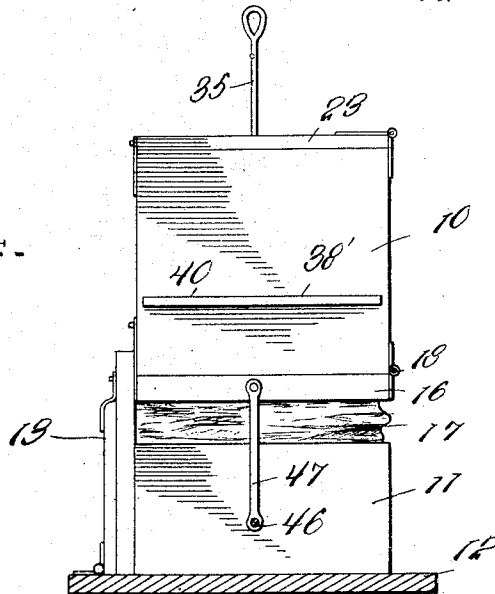


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

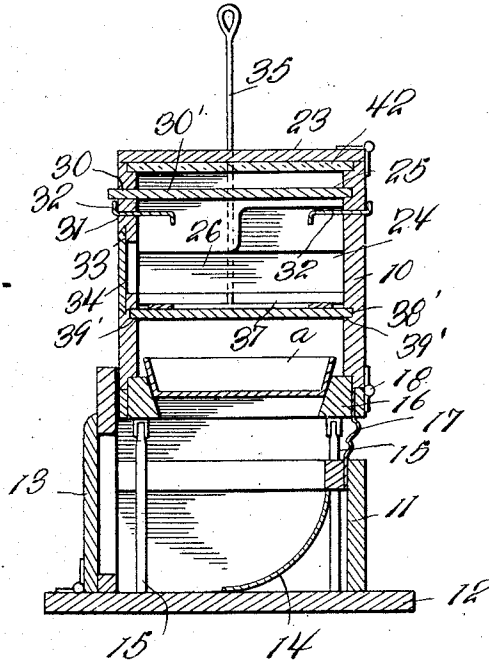
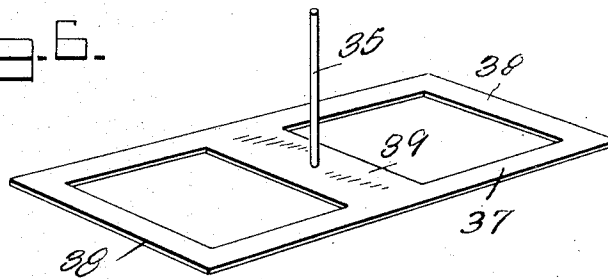


Fig. 6.



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UNITED STATES PATENT OFFICE.

ANDREW T. LARSON, OF WHEELER, WISCONSIN.

DEVELOPING-MACHINE.

No. 885,492.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed April 18, 1906. Serial No. 312,508.

To all whom it may concern:

Be it known that I, ANDREW T. LARSON, a citizen of the United States, residing at Wheeler, in the county of Dunn, State of Wisconsin, have invented certain new and useful Improvements in Developing-Machines; 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.

This invention relates to developing machines and has for its object to provide a simple machine of this character which will efficiently treat photographic plates with the developing and fixing solutions and in which the fixing solution may be inserted after the plates have been developed, without danger of their being light-struck.

A further object of the invention is to provide means for lifting the plates from the developing solution when so desired, and to provide a construction of this nature which will permit examination of the plates while they are being developed, but yet without danger of being injured by the light.

The invention also includes means whereby the trays may be filled while in the machine or material supplied to them, as the case may be.

In the accompanying drawings: Figure 1 is a front elevation of the machine. Fig. 2 is a vertical longitudinal sectional view therethrough. Fig. 3 is a top plan view thereof. Fig. 4 is an end elevation with a portion of the machine removed. Fig. 5 is a detail vertical transverse sectional view through the machine, and; Fig. 6 is a detail perspective view of the plate-lifter.

Referring more specifically to the drawings, the numerals 10 and 11 denote upper and lower casings respectively, the casings 11 being disposed upon a base 12. The casing 11 comprises sides and ends which are closed with the exception of one of the sides which has an opening formed therethrough, and is provided with a door 13 for the admission of light into the casing under circumstances to be hereinafter pointed out and located within the said casing 11 is a reflector 14 which is secured at its lower edge to the base 12 adjacent the opening in the said side of the casing and curves upwardly and rearwardly from the said side of the casing and is secured at the other edge to the opposite side wall of the casing, this curving of the reflector serving to

direct rays of light which enter through the opening in the first-named side of the casing, upwardly.

Extending upwardly from the base 12 and adjacent the sides of the casing 11 and at a point equi-distant from the ends thereof are standards 15 upon the upper end of which is rockingly supported a tray supporting frame 16 which is preferably of rectangular construction and which has the opposing edges of its sides and ends correspondingly beveled for the reception of a photographic tray. Connecting the corresponding sides and ends of the tray-supporting frame 16 and the casing 11 is a bellows 17 of opaque material, the said bellows being extended entirely around the tray and casing with the exception of the forward side thereof, at which side the side of the casing itself is extended upwardly as shown in Fig. 4 and it will be apparent that the function of the bellows is to exclude extraneous light.

Hinged as at 18 to one of the sides of the frame 16 is the aforementioned casing 10 which is arranged to snugly fit the frame and completely cover the photographic tray which is indicated by the character *a*. In order to supply photographic-plate treating fluids to the tray *a*, I provide a pair of funnels 19 having spouts 20 which extend through passages formed in the upper face of one of the ends of the tray-supporting frame 16 and extend upwardly therefrom and thence are curved downwardly as at 21 with their open ends directly above the adjacent end of the tray *a* to discharge therein, it being understood that the bodies of the funnels lie exterior to the casing 10.

The casing 10 includes sides and ends and a hinged top 23. Extending from side to side of the casing 10 and intermediate the ends thereof is a block 24 which is provided in its opposite faces with grooves 25 and 26, the grooves 26 being located in a plane below the grooves 25. Extending from side to side of the casing 10 and at the ends thereof are blocks 27 which are provided in their faces opposing the block 24 with grooves 28 and 29 which are in alinement with the grooves 25 and 26 respectively, of the block 24. Formed through one side of the casing 10 are slots 30 which register with the adjacent ends of the grooves 25 and 28 for the insertion of slides 30' and formed through both sides of the casing in a plane slightly below that of the slots 30 are slots 31 in which are slidably engaged

detent plates 32, the said plates having their opposite ends beyond the slots bent in opposite directions to prevent accidental disengagement of the detent plates from the casing, the object of the plates being to prevent dropping of the kits in the plate treating fluid when the plates are released from the holder, in a manner to be hereinafter described.

The plate-holder (not shown) is inserted in the casing 10 through openings 33 formed in the side thereof, through which the slots 30 are formed, and is held in the casing by means of the grooves 26 and 29. A slide 34 is slidably disposed upon the said casing and is arranged to cover the said openings 33 when the machine is in use to prevent entrance of light.

Mounted for vertical sliding movement in the block 24 is a rod 35 which has its upper end extended through a slot 36 formed in the top 23 of the casing, the said slot being of such extent as to permit the raising of the lid without likelihood of the rod interfering with the same. Detachably connected with the lower end of the rod 35 is a frame comprising side members 37, ends 38, and a connecting portion 39 which is located intermediate the ends 38 and to which the rod 35 is connected. The frame is open and is of such size as to support the photographic plates, it being understood that the rod 35 may be moved upwardly and downwardly in the casing to raise and lower the frame above described together with the plates supported thereby to deposit the said plates in or remove them from the plate treating fluid. When it is desired to remove the plates from the developing fluid and transfer them to the fixing solution, the frame is raised until it contacts with the underside of the block 24, it being held in this position by means of a plate 38' which is slidably disposed in the casing 10 in grooves 39' formed in the sides thereof and which is removable through a slot 40 formed in one end of the casing, it being understood that the frame which supports the photographic plate rests upon the plate 38'. After this has been done, the upper section of the device may be swung back slightly to permit removal of the tray containing the developing solution and the tray containing the fixing solution may then be introduced.

Disposed upon the blocks 24 and 27 is a glass plate 42 which is preferably red in color to prevent injury to the plates when the top 23 is opened. It will be readily understood that by opening the door 13 and allowing the light to shine in the lower casing 11, it will be deflected upwardly and through the developing or fixing tray which is formed of ruby glass, and the plates therein, the condition of which latter may be viewed through the ruby glass 42.

In order to rock the upper casing 10 I pro-

vide a suitable spring motor 44 which is located at the end of the casing 11 opposite to the funnels 19 and which includes a drive shaft 45 carrying a crank 46 connecting which and the corresponding end of the upper casing 10 is a connecting rod 47, it being understood that the motor, which may be of any desired construction, serves to rock the said upper casing through the instrumentality of the connecting rod 47.

The operation of the device is as follows: The plate holder or plate holders is inserted through the longitudinal slot in the front face of the upper casing 10 and this section of the machine is then swung upon its hinges 18 until it has been completely turned over. The lower slide in the plate holder is then removed and the plate or the plate and its kit as the case may be is dropped upon the plate of red glass 42, after which the slide 30' is inserted into the casing, it being understood that the kit catchers 32 are pulled out of the casing. It will of course be understood that a plate holder used in connection with this machine must be of such construction that the plate may be dropped therefrom when the slide is moved but the kits however may be of the usual construction, that is with clips on but one face so that the plate may have an exit from the opposite face. When the slide 30' has been inserted, the plate holder is removed and the slide 34 pushed into position to close the slots through which the plate holder or plate holders were inserted, thereby preventing the photographic plates being light struck by such removal of the plate holder. After the slide 34 has been moved to close the slots as stated, the kit catchers 32 are pushed into the casing and the slide 30' removed thus allowing the kits to drop upon and be supported by the kit catchers and allowing the plates to drop upon the tray 37 by means of which they may be lowered into the developing or fixing solution in the tray *a*.

What is claimed is:

1. A device of the class described comprising upper and lower casings, means for supporting a tray in said upper casing, and means located in the lower casing for reflecting the light into said upper casing.
2. A device of the class described comprising upper and lower casings, means for supporting a tray in said upper casing, and means extending through said upper casing for moving plates into and out of the tray.
3. A device of the class described comprising upper and lower casings, means for supporting a tray in said upper casing, and a frame located in said upper casing and arranged for movement therein to move plates to and from said tray.
4. A device of the class described comprising upper and lower casings, means located in said upper casing for supporting a tray,

means located in said lower casing for reflecting light into said upper casing, and means associated with the upper tray whereby the plates may be viewed.

5 5. A device of the class described comprising upper and lower casings, means located in said upper casing for supporting a tray, said upper casing being mounted to rock upon said lower casing, means for rocking
10 said upper casing, and means located in the lower casing for reflecting the light into said upper casing.

6. A device of the class described comprising upper and lower casings, means located

within the upper casing for supporting a tray, 15
means located within the lower casing for reflecting light into said upper casing, means located within the upper casing for lifting and depositing plates from and into said tray, and means for holding said last-named 20 means in its raised position.

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

ANDREW T. LARSON.

Witnesses:

OLAF LARSON,
JOHAN SOTTER.