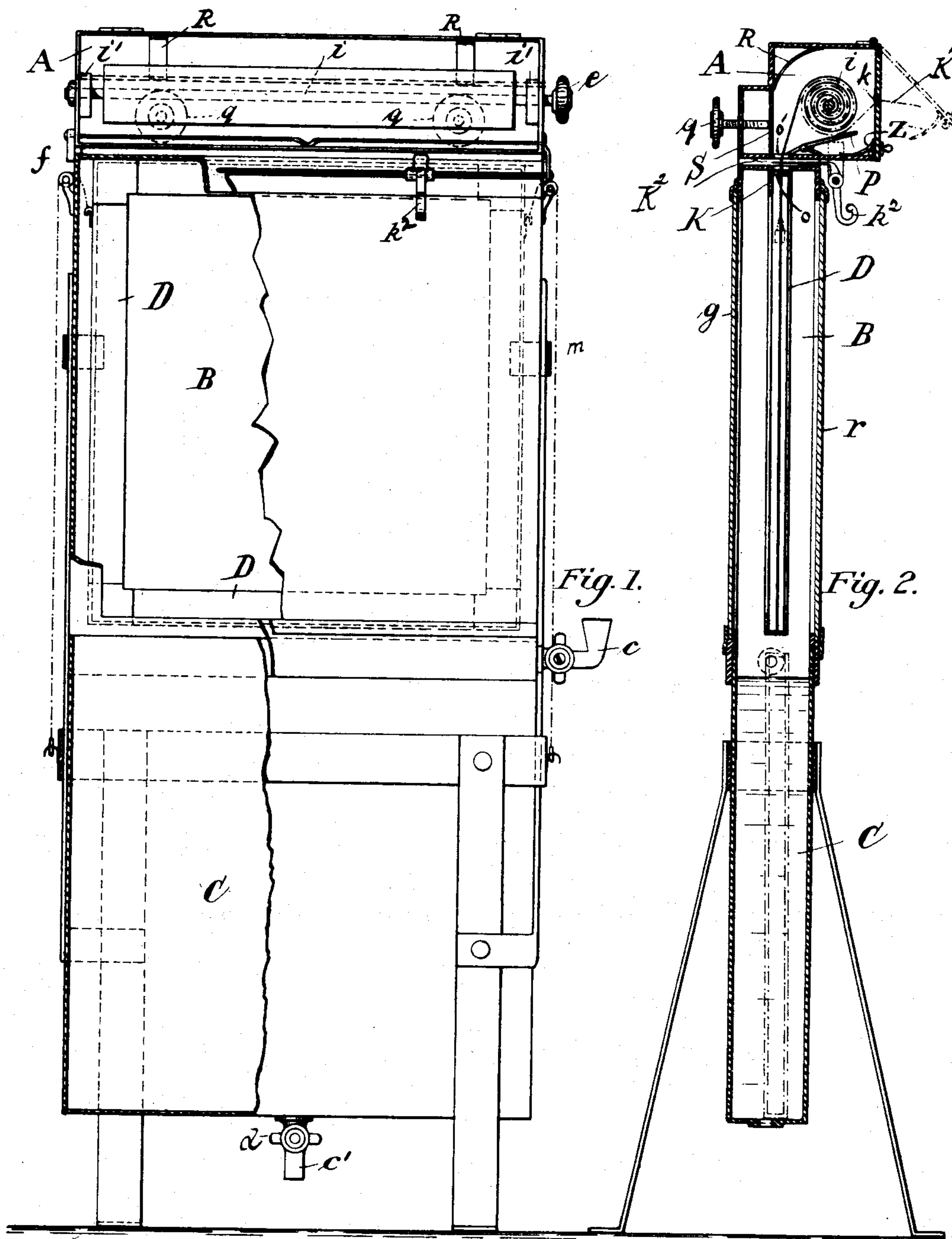


R. FLEISCHER.

APPARATUS FOR DEVELOPING AND FIXING PHOTOGRAPHIC FILMS.

(Application filed May 27, 1899.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

RICHARD FLEISCHER, OF WIESBADEN, GERMANY.

APPARATUS FOR DEVELOPING AND FIXING PHOTOGRAPHIC FILMS.

SPECIFICATION forming part of Letters Patent No. 683,031, dated September 24, 1901.

Application filed May 27, 1899. Serial No. 718,517. (No model.)

To all whom it may concern:

Be it known that I, RICHARD FLEISCHER, gentleman, residing at Wiesbaden, in the Empire of Germany, have invented new and useful Improvements in the Manufacture of Apparatus for Developing and Fixing Photographic Films, (for which I have applied for Letters Patent in Germany, F. 11,314, IV/57, of November 8, 1898; in England, No. 1,015, of January 16, 1899, and in France, No. 274,613, of March 10, 1899,) of which the following is a specification.

The present invention has for its object an improved apparatus for developing, fixing, and washing photographic images in daytime without making use of a dark chamber.

It more particularly relates to that kind of apparatuses in which continuous films in the roll are used, but may easily be adapted for the use of plates or any sensitized medium.

In order to transfer the films into the apparatus, it is provided with an additional upper chamber, in which the continuous films are mounted on a spool to be rotated within that chamber, the black strip with which the film is wound up being led out through a slit in the wall of the upper chamber, while the film is conducted between a pair of rollers and through a slit into a frame, into which the film easily enters when in the dry state.

The accompanying drawings illustrate a kind of the apparatus as adapted for films in the roll, Figure 1 representing a front view, partly showing the interior, and Fig. 2 representing a section on the line 2 2 of Fig. 1.

The apparatus shown comprises a casing having three superposed chambers A B C. The lower chamber C, mounted on a suitable standard, is alternately used as a developing, washing, and fixing bath. The corresponding liquid is poured into the chamber C through the inlet-pipe *c* or any other suitable device, and when the corresponding operation is finished the liquid is to be emptied by opening the tap *d* of the outlet-pipe *c'*. If desirable, instead of the liquid in the chamber C this chamber itself may be exchanged by placing the upper chamber B on a second and third chamber of the same shape as C, but containing the other required liquids. The intermediate chamber B, with the superposed upper chamber A, is detachable from the

lower chamber C. The intermediate chamber B is provided with removable colored windows *g* and *r* at opposite sides, through which the film may be viewed by transmitted light. A dipping-frame D is arranged so as to be capable of being moved up and down from the outside by means of draw-cords *m*, or the sliding of this frame D between the removable colored windows may be effected in any other suitable manner. Said dipping-frame is preferably formed as a skeleton frame, as shown. A device is provided for fixing the dipping-frame D in its highest position, so that the film can be introduced into it. In the upper edge of the dipping-frame is an aperture which comes just opposite a slot *o* in the top of the chamber B, above which is placed the upper chamber A for the introduction of the film into the dipping-frame D. As shown in the drawings, the casing A is provided with bearings *i'* for the spindle *i*, on which the film-spool L is placed. The spindle *i* is removable, so that the film-roll can be put over it, and it may be turned from the outside by the small handle *e*. The end of the black ribbon *K'* is conducted through slot *k* of the casing to the outside, while the film *K* is led between the metallic guides P and S. The metallic guide-plate P is provided with a spring *s'*, causing the plate P to bear against the roll of film and ribbon, and has for its object, first, to prevent the spontaneous rolling off of the film-roll, and, secondly, to guide the descending films precisely through the slot *o'* of the casing A into the dipping-frame D. The plate P can be moved down by turning the small lever *f*, Fig. 1, on the outside of the casing A, so that the film-roll can be easily introduced into the film-chamber A. When this is accomplished and the film-roll is in its right position, the plate will be pressed against it by the action of its spring, and thus effect the above-described functions. The second plate S, having similar guiding functions as the plate P, can be adjusted from the outside by screws *q q*, so as to move it toward and from the film-roll to thereby guide the film through the slots *o' o*. On two walls, preferably on the front door and the back wall of the upper chamber A, there are arranged some metallic guides R and Z, their object being to keep the descending films in their right

position and preventing them from taking a wrong course. Directly underneath the top of the chamber B and fitted to work over its slot is a knife K², which can be operated from outside by means of a handle k² for cutting off the film as required.

It is obvious that this apparatus may be constructed in various ways, its details being altered according to the requirements. By exchanging the colored windows the development of the films may be inspected under the most favorable conditions.

As the film-roll is rotated the film passes through the slots o o' into the sliding-frame D, the ribbon being passed or drawn through the slot k at the same time to the exterior of the device. In order to remove the finished film, the same may be cut off by the cutting device and the frame B lifted from the lower frame C, or one of the removable glass pieces g or r may be opened, and thus allow access to the film for its removal.

The invention is not limited to means for operating upon films or plates, and the "sensitized medium" as employed in the claims must be understood to mean substances of any form or character capable of receiving a photographic image.

Now what I claim, and desire to secure by Letters Patent, is the following:

1. In a photographic developing apparatus, the combination of the developing-chamber with a case secured thereto and adapted to receive the photographic film on its spool, and means connected to said spool to transfer said film into the developing-chamber, substantially as described.

2. In a photographic developing apparatus, the combination of the developing-chamber with a case provided with bearings to receive a film-roll, means to rotate the film-roll from outside, and guides adjacent to the film-roll and adapted to direct the film to a slot leading into the developing-chamber, substantially as described.

3. In a photographic developing apparatus, the combination of the developing-chamber with a case provided with bearings to receive a film-roll, means to rotate the film-roll from the outside and guides extending from the film-roll to a slot leading into the develop-

ing-chamber, and guides extending from the film-roll to a slot in the detachable chamber, opening into the open air, substantially as described.

4. In a photographic developing apparatus, the combination of a developing-chamber with a casing having a slot, a case as described adapted to contain a film-roll and provided with means to feed a film through the said slot, and a cutter arranged to move over the slot and to be worked from the outside, substantially as described.

5. In a photographic developing apparatus, a case provided with a slot and means to feed a film through said slot, a frame opening toward the slot and adapted to receive the edges of the film, substantially as described.

6. In a photographic developing apparatus, the combination of a case provided with a slot and adapted to feed a sensitized medium through said slot, with a developing-chamber and a viewing-chamber with a frame receiving the sensitized medium and adapted to be moved from the developing-chamber into the viewing-chamber, substantially as described.

7. In a photographic developing apparatus, the combination of a viewing-chamber with a case adapted to receive a sensitized medium and a chamber adapted to receive a liquid, and means to transfer the sensitized medium from the first said case into the viewing-chamber and into the last said chamber, substantially as described.

8. In a photographic developing apparatus, the combination of a viewing-chamber with a case adapted to receive a sensitized medium, and a detachable chamber adapted to receive a liquid, and means to transfer the sensitized medium from the first said case into the viewing-chamber and into the last said detachable chamber, substantially as described.

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

RICHARD FLEISCHER.

Witnesses:

RICHARD GUENTHER,
JEAN GRUND.