G. C. BEIDLER.

PHOTOGRAPHIC AND DEVELOPING APPARATUS.

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1,285,906. Patented Nov. 26, 1918.

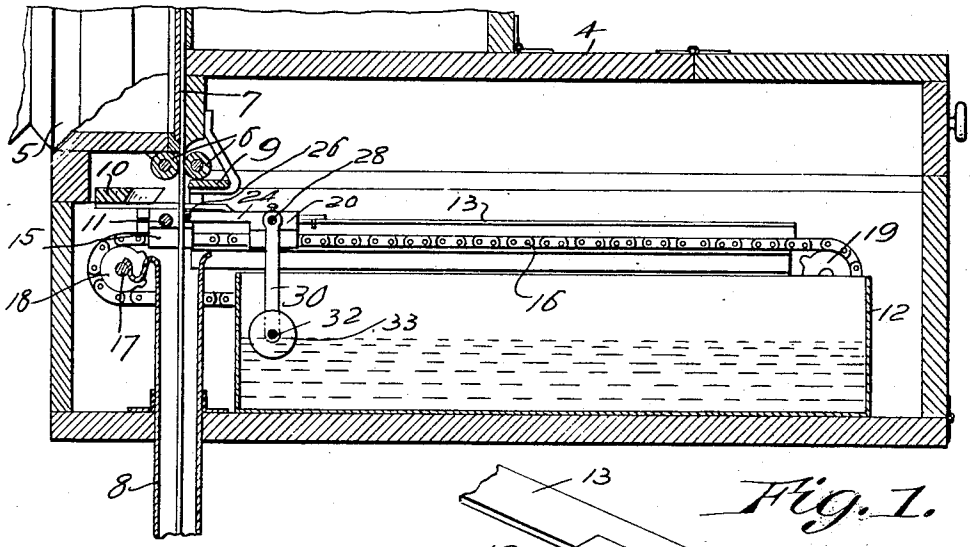


Fig. 1.

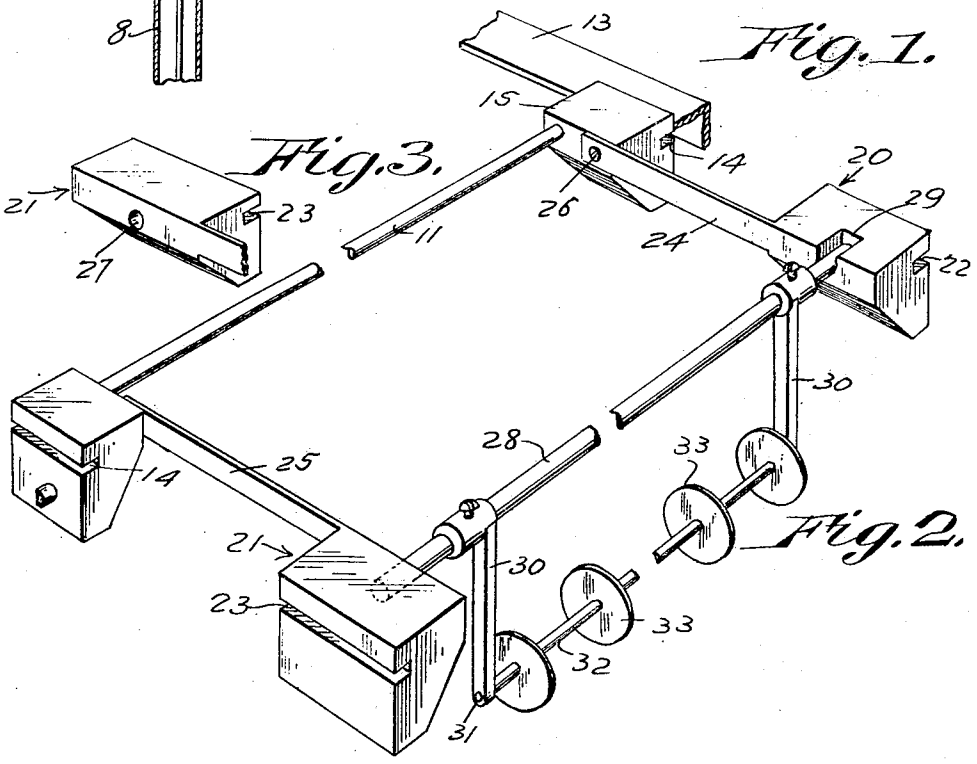


Fig. 3.

Fig. 2.

Witnesses

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PHOTOGRAPHIC AND DEVELOPING APPARATUS.

1,285,906. Specification of Letters Patent. Patented Nov. 26, 1918.

Application filed January 20, 1916. Serial No. 73,169.

To all whom it may concern:

Be it known that I, GEORGE C. BEIDLER, a citizen of the United States of America, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Photographic and Developing Apparatus, of which the following is a specification.

This invention relates to photography and particularly to novel means for subjecting film to the action of fluid, the said invention relating especially to means for submerging or pressing the film so that it will descend in the fluid.

The invention herein relates particularly to that class of photographic apparatus which have for their objects the severance of film into lengths preferably coextensive or practically coextensive in area with the area of the exposure thereon, the subjecting of the said film to the action of developing fluid and the delivery of the developed portion of the film to a liquid bath, preferably hypo, so that the severed sections of film after delivery to the hypo may be pressed under the surface of the hypo in order that the coated surface of the film may be affected uniformly throughout its surface or the exposed area thereof.

I have used the term "film" herein and by that term, I mean sensitized flexible material capable of use in conjunction with developing means adapted to subject the film to the action of fluid after it has been exposed to light.

With the foregoing and other objects in view, the invention consists in the broad idea to be set forth in the claims during the prosecution of the application, the said claims to be of such scope as to give protection commensurate with the inventive act in view of the state of the art when the said invention was produced.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 illustrates a vertical sectional view of a fragment of a photographing and developing apparatus embodying the invention;

Fig. 2 illustrates a perspective view of the film submerging means associated with film drawing means; and

Fig. 3 illustrates a perspective view of a detail employed in connection with the invention.

In these drawings 4 denotes a casing, 5 an exposing chamber, 6 the drawing rolls for pulling film 7 through the exposing chamber and delivering it to a receptacle 8 which is adapted to contain developing fluid. Thus, film after exposure is delivered to the developing fluid where the film is subjected to the action of said fluid a predetermined time. A stationary knife blade 9 and a movable knife blade 10 are adapted to coact for severing the film and there is a drawing rod 11 adapted to engage the film which is suspended from or by the feed rolls, for the purpose of drawing the film from the developing fluid and stretching it over the fluid in the receptacle 12 prior to its being cut, it being understood that after it is cut, the severed section of film will fall into the receptacle 12 which preferably contains hypo or other fixing fluid.

The means for operating the feed rolls and actuating the cutting member or knife may be of any well known construction, but they are here shown as essentially comprising or including a construction, the details of which are more fully illustrated in my application filed June 11, 1914, Serial Number 844,516.

As the said application discloses a means for operating the drawing rod 11, the illustration of said means is here reproduced in part and comprises the guides 13 which enter slots 14 in the sliding block 15. The sliding blocks are moved longitudinally of the guides by means of chains, one of which (16) is here illustrated, it being understood that there is a duplication of these parts on opposite sides of the casing. A shaft 17 is suitably rotated and carries a sprocket wheel 18 which is engaged by the sprocket chain 16. Furthermore, the sprocket chain 18 engages a sprocket wheel 19 mounted to rotate near the opposite end of the casing and as the sprocket chain is moved alternately in opposite directions through the rotation of the shaft 17, the blocks 15 are reciprocated on their guides. By reason of the movement of the parts just described, film is drawn from the receptacle 8 and after it has been

severed, it falls into the receptacle 12 containing the fixing fluid or other liquid preferably adapted to act on the coated surface of the film. It has been found desirable, to more effectually subject the film to the action of the fixing fluid, to mechanically agitate the film after it has been deposited in the fluid or to press the said film so that it will descend in the fluid and various means have been devised by me for effecting this result.

In the present embodiment of a device designed to accomplish that result, I have provided additional blocks 20 and 21 having slots 22 and 23 respectively to receive the edges of the guides 13 so that the blocks 19 and 20 move in unison with the blocks 15 during their reciprocation in the casing. The blocks 19 and 20 are here shown as having arms 24 and 25 respectively, each of which is secured to a corresponding block 15 by a fastening such as a screw 26, thus forming a framelike structure which is slidable on the guides within the casing.

The blocks 19 and 20 may be regarded as bearing blocks in that in the present embodiment of the invention, one of the said blocks has an aperture 27 to receive an end of a shaft 28, whereas the opposite block 20 is recessed to form a seat 29 for the reception of the opposite end of the said shaft, the arrangement of parts being such that preferably the shaft may rock slightly in the bearing blocks for a purpose to be presently explained.

The arms 30 extend from the shaft 28 and their outer or lower ends are provided with apertures 31 in which a shaft 32 is rotatable, the said shaft being supplied with disks 33 so secured on the shaft as to be rotatable therewith, although the said disk may be independently rotatable on the shaft.

The disks, shafts 32 and arms 30 are preferably constructed of material which is not injuriously affected by photographic chemicals, such as fixing fluid and the weight of these materials should be such as to insure submergence of a film or films with which they come in contact. It has been found in practice that a film submerging device made in accordance with the invention is effective to ride over the film and press it into the fixing fluid. During the operation of an apparatus embodying the invention, it has been observed that film which has fallen into the fixing fluid after being cut is engaged by the disks during the time that the drawing rod is being returned to normal position, which is the position in which it appears illustrated in Fig. 1, and that the said engagement of the disks with the film results in moving the film longitudinally of the receptacle and that this movement continues until the end edge of the film remote from the disks has engaged the wall of the receptacle. Movement of the film is then arrested and further movement of the disks results in the disks traveling over the film and pressing the same below the surface of the fixing fluid. The initial movement of the film longitudinally of the receptacle has certain advantage in that it tends to expel air from under the film and insures proper coating of the film with the said fixing fluid. On the outward movement of the immersing member, there is also observed to be a tendency for it to communicate movement to the film, but the tendency is slight and only a slight agitation of the film results.

As the films increase in number within the receptacle, the arms may swing slightly so that the disks may be elevated to accommodate themselves to the increased thickness of the layers of film which they over-ride.

With the use of the immersing device of the invention a very slight amount of power is required for its operation and as there is no movement of the immersing member in and out of the fluid, there is no appreciable agitation of the fluid due to the reciprocatory motion of the immersing device with relation to the receptacle.

I claim:

1. In an apparatus relating to photography, a device for containing liquid and for receiving sections of film therein, a device extending into the receptacle and adapted to engage film delivered to said receptacle for submerging the same, and means for reciprocating the said second mentioned device.

2. In an apparatus relating to photography, a receptacle adapted to contain liquid and receive film for treatment in said liquid, means for delivering film to the said receptacle, a member extending into the receptacle and adapted to engage the film for submerging the same, and means for reciprocating the said member in the said receptacle.

3. In an apparatus relating to photography, a receptacle adapted to contain liquid and receive film for treatment in said liquid, means for delivering film to the said receptacle, a device extending into the receptacle said device including rotatable disks adapted to engage the film for submerging the same, and means for reciprocating the said device in the said receptacle.

4. In an apparatus relating to photography, a receptacle adapted to contain fluid and receive film to be treated by said fluid, means for delivering film to the receptacle, a member extending into the receptacle for engaging the film and submerging it, and means actuated by the film delivering means for reciprocating said submerging member.

5. In an apparatus relating to photography, a receptacle for containing fluid and for receiving film, means for delivering film

to the receptacle, means for cutting the film, a film submerging means comprising a member extending into the receptacle, and means for reciprocating the said submerging means longitudinally of the receptacle.

6. In an apparatus relating to photography, a receptacle for containing fluid and for receiving film, means for delivering film to the receptacle, means for cutting the film, a film submerging means comprising a member extending into the receptacle and including means for engaging the film, and means for reciprocating the said submerging means longitudinally of the receptacle.

7. In an apparatus relating to photography, a device for containing liquid and for receiving sections of film therein, a device extending into the receptacle and adapted to engage film delivered to said receptacle for submerging the same, and means for moving said device horizontally in the receptacle.

8. In an apparatus relating to photography, a device for containing liquid and for receiving severed sections of film therein, a device extending into the receptacle and adapted to engage film delivered to said receptacle for submerging the same, and means for moving said device longitudinally of the receptacle.

9. An apparatus relating to photography, a device for submerging film in a fluid comprising disks, means for oscillatingly suspending the disks, and means for carrying the disks supporting members.

10. In an apparatus relating to photography, a device for submerging film including an oscillatable member, a member rotatably mounted on and carried by the said oscillatable member, and means for transporting the oscillatable member.

11. In an apparatus relating to photography, an oscillatable member, means for oscillatingly supporting said member, a film engaging member rotatably mounted on the oscillatable member, and means for transporting the support of the oscillatable member.

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

GEORGE C. BEIDLER.

Witnesses:

C. F. SCHMIDT,

R. B. LA FORCE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."