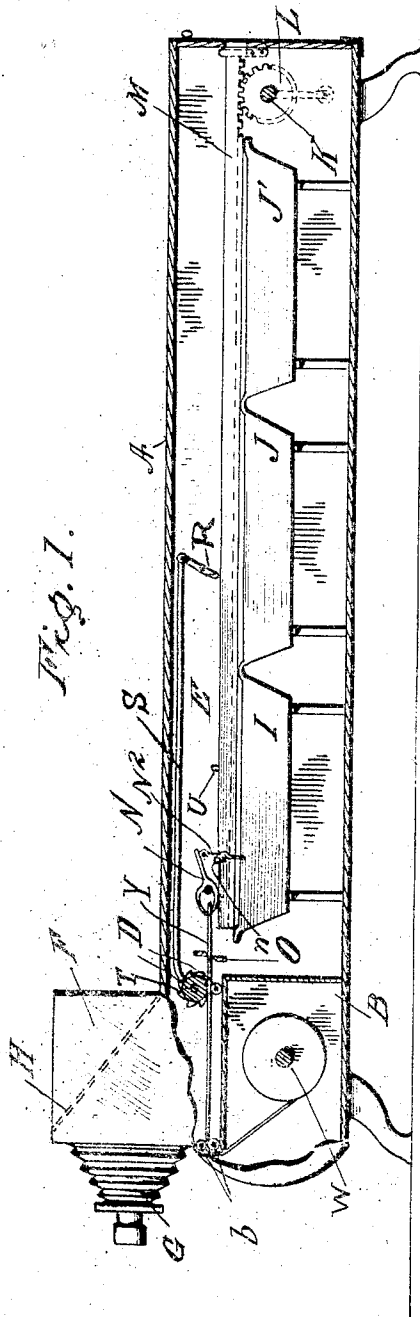


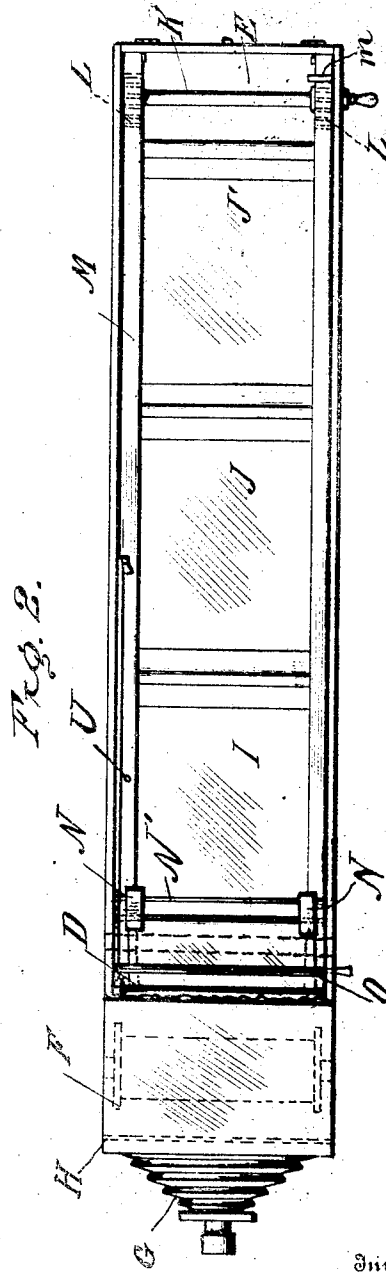
G. C. BEIDLER.
 PHOTOGRAPHING AND DEVELOPING APPARATUS.
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Patented Mar. 25, 1913.



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PHOTOGRAPHING AND DEVELOPING APPARATUS.

1,057,397.

Specification of Letters Patent.

Patented Mar. 25, 1913.

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To all whom it may concern:

Be it known that I, GEORGE C. BRIDLER, citizen of the United States of America, residing at Oklahoma city, in the county of Oklahoma and State of Oklahoma, have invented certain new and useful Improvements in Photographing and Developing Apparatus, of which the following is a specification.

This invention relates to printing and developing apparatus and refers more particularly to an apparatus designed primarily for reproducing writings, drawings, pictures, or the like, novel means being also provided to convey the sensitized film through a series of receptacles containing suitable developing and fixing fluids or through suitable baths according to the requirements.

A preferred form of construction of my apparatus will be herein described, but it is to be understood that this particular form is shown only for the purpose of illustrating one embodiment of the invention.

It is an object of this invention to provide an apparatus which will be simple in construction, efficient in practice and economical to manufacture.

With the foregoing and other objects in view, the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

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 in which—

Figure 1, is a longitudinal vertical sectional view through the casing with parts in elevation; and Fig. 2, is a plan view of the apparatus with the top of the casing removed.

In these drawings A, denotes a suitable casing supported in any manner desired containing a compartment B, adapted to contain sensitized paper, preferably in roll form. The roll W is suitably mounted to rotate and the paper drawn from the roll is projected through the top of the compartment between the rollers *b*, and then directed to travel over the top of the said compartment between the rollers D, into the compartment E. There is an exposure chamber F, above the compartments and a suitable camera G, is provided for taking the picture, there being an angularly disposed mirror H, in the exposure chamber for reflecting the

image onto the sensitized paper or film heretofore referred to.

The compartment E, is provided with a series of pans or tanks I, J, and J', and these tanks may be multiplied to suit the requirements of practice to contain the several liquids required in fixing and developing the exposed films.

In order to draw the film through the several compartments, I provide a mechanism consisting of a shaft K, having toothed wheels L, which mesh with a rack M, the said rack being suitably guided in the compartment E, and being alternately reciprocated through the rotation of the shaft K, in opposite directions. When the shaft is turned to the right, the said rack will be projected from the compartment until the inner end thereof is nearly above the shaft K. When the shaft is rotated in the opposite direction, the said rack will, of course, be retracted and thrust into the compartment. It is the purpose of this invention that the said rack shall carry clips N, which are designed to clamp on the edges of the film Y and as the said rack is moved outwardly, the film is carried through the several tanks as indicated. The clips are automatically released and set through the contact with trips within the casing in the path of travel of said clips. The trips just referred to are preferably near the ends of the casing and consist of pins *m* and *n*, projecting preferably transversely of the casing above one side of the rack and as there is a clip N, on each side of the rack, the said clips are moved in unison by reason of the connecting rod N'. From an inspection of the drawing it will be observed that the upper end of the lever N² for operating the clip, comes in contact with the pin *n*, when the rack has reached the limit of its forward movement and hence said lever is thrown into engagement with the end of the clip to close the jaws of said clip and the parts will remain in this relation until the rack has traveled to nearly the limit of its outward movement when the upper end of the lever will strike the pin *m*, thus moving the said lever out of engagement with the end of the clip and releasing the clip to permit the discharge of the paper into the receptacle J'. After the paper is cut by the knife O, it is desirable to move the next succeeding film portion a short distance beyond the knife in order that it may

be in the path of travel of the clips. To effect this initial movement of the film, I provide a lever R, which is pivoted in the casing and the upper end of the lever carries a pawl S, which projects into engagement with a ratchet wheel T, on the roller D. A pin U, on the rack contacts with the lower end of the lever R, as the rack is reciprocated and the said lever is thereby oscillated to move the pawl and cause the rotation of the said roller D.

In order to sever the prints into appropriate lengths, I provide a cutter O, which may be of any construction for severing the films, the cutter illustrated in the drawings comprising two contacting blades, one of which may be pivoted with relation to the other and it may be provided with an operating handle.

Any suitable means may be provided for drawing the film through the exposing chamber, but I have shown the rollers D, which if suitably rotated would draw the film through the exposing chamber and deliver it to the carriers.

I claim—

1. In a photographing and developing apparatus, a chamber, suitable means for drawing film and delivering it to the chamber, tanks in said chamber, a rack and gear operating mechanism for carrying the film delivered to the chamber, through the tanks, means on the racks for engaging the film, and means acting on the film drawing means for imparting an initial movement to the film.

2. In a photographing and developing apparatus, a compartment adapted to contain a supply of film, means for drawing the film therefrom, a chamber to which film is delivered by the means for drawing film, a series of tanks, a rack traveling over the tanks, a gear for moving the rack, means on the rack for engaging the film delivered to the chamber to carry said film through the tanks, and means acting on the film drawing means for imparting an initial movement to the film to project it into the path of travel of the film engaging means on the rack.

3. In a photographing and developing apparatus, a series of tanks, a frame movable over the tanks, means on the frame for engaging film, means for operating the film engaging means, film drawing means, a source of film supply from which the film is drawn by the said drawing means, and means operated by the frame to cause the film drawing means to impart initial movement to the film to project it into the path of travel of the film engaging means.

4. In a photographing and developing apparatus, a chamber, means for projecting film into the chamber, a member having reciprocating movement in the chamber, means for operating said member, means on

the member for engaging and carrying said film, and a liquid container in the chamber through which the film is drawn by said member.

5. In a photographing and developing apparatus, a chamber, means for projecting film into one end of the chamber, means in the chamber adapted to engage the film, means for reciprocating the film engaging means lengthwise of the chamber and means in the path of the film engaging means for tripping the same.

6. In a photographing and developing apparatus, means for containing a supply of film, a chamber, means for delivering film to the chamber from the means for containing the supply of film, receptacles in said chamber for containing fluids, means for cutting the film delivered to the chamber, reciprocating means mounted to move across the receptacle, and means on said reciprocating means for engaging the film delivered to the chamber for carrying said film in the liquid contained by the receptacle.

7. In a machine relating to photography, means for containing a supply of film, a chamber, means for delivering film from the first mentioned means to the said chamber, receptacles in the chamber for containing fluid adapted to act on the coated surface of the film, means for cutting the film delivered to the chamber, and a member mounted to reciprocate in the said chamber for effecting the transfer of the film from one receptacle to another.

8. In a photographing apparatus, the combination of means for holding a supply of film, constructed to protect said film from actinic rays of light and having means for subjecting a portion of film at a time to the action of such rays, film holding and suspending means supported wholly exterior to the liquid and in position to subject the film carried thereby to the action of the liquid, and means for producing relative movement of the liquid and said film holding means while the portion of film suspended by the latter is in said liquid.

9. In a machine relating to photography, means for containing a supply of film, a chamber to which film is delivered from the means for containing the supply thereof, means for transferring the film from the containing means to the chamber, receptacles in the chamber to contain fluids, a member mounted to reciprocate in the chamber and operative to transfer film from one receptacle to another, and a rack and pinion for moving the reciprocating member.

10. In a machine relating to photography, means for containing a supply of film, a chamber to which film is delivered from the means for containing the supply thereof, means for transferring the film from the containing means to the chamber, recep-

tacles in the chamber to contain fluids, a member horizontally mounted to reciprocate in the chamber, operative to transfer film from one receptacle to another, and a rack and pinion for moving the reciprocating member.

11. In a photographing and developing apparatus, the combination of means for holding a supply of film, constructed to protect said film from actinic rays of light and having means for subjecting a portion of film to the action of such rays, a receptacle containing liquid, film holding and suspending means, a support for the last mentioned means always maintaining the film holding and suspending means exterior to the liquid in the receptacle and in position to subject the film to the action of the liquid in the receptacle, and means for producing relative movement of the film suspended from said holder and said liquid, whereby the suspended film is moved through the liquid in said receptacle.

12. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, means for subjecting a portion of the film to the action of such rays, a receptacle containing liquid, film holding and suspending means, a support for the last mentioned means always maintaining the film holding and suspending means exterior of the liquid in the receptacle, said film holding and suspending means including a to and fro moving member for producing relative movement of the film holder and suspending means and said liquid, whereby the suspended film is moved through the liquid in said receptacle.

13. In a photographing and developing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light and having means for subjecting portions of the film to the action of such rays, a receptacle for containing liquid, film holding and suspending means, a support for the last mentioned means always maintaining the film holding and suspending means exterior to the fluid in the receptacle, and means for reciprocating said film holding and suspending means across the receptacle and in position to subject the film to the action of the fluid in the receptacle.

14. In a photographing apparatus, the combination of means for holding a supply of film, constructed to protect said film from actinic rays of light and having means for subjecting a portion of film to the action of such rays, a liquid holder, film holding and suspending means including a to and fro moving member, a support for the latter above liquid in the holder, and means for producing relative movement of said film suspending means and said liquid holder.

15. In a photographing and developing apparatus, the combination of means for holding a supply of film having means for exposing a portion of film to light, receptacles within the casing for containing fluids, means for delivering the film thereto, means for engaging and supporting the delivered film, means for moving the film engaging and supporting means lengthwise of the chamber, and means for cutting the film.

16. In a photographic and developing apparatus, the combination of means for holding a supply of film and having means for exposing a portion of film to light, receptacles for containing fluid, means for delivering film thereto, means for engaging and supporting the delivered film, means for moving the film engaging and supporting means lengthwise of the chamber, and means for cutting the film.

17. In a photographing apparatus, the combination of means for holding a supply of film, constructed to protect said film from actinic rays of light and having means for subjecting a portion of film at a time to the action of such rays, a liquid holder, film feeding means situated between said holder and the source of supply of film, and a reciprocating film moving means situated to receive the film coming from said film feeding means so as to carry said film and subject the film to the action of liquid in the liquid holder.

18. In photographing apparatus, the combination of means for holding a supply of film, constructed to protect said film from actinic rays of light and having means for subjecting a portion of film at a time to the action of such rays, a liquid holder, film feeding means situated between said holder and the source of supply of film, and a reciprocating film clamp situated to receive the film coming from said film feeding means and operative to subject the film to the liquid in the liquid holder.

19. In a photographing and developing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light and having means for subjecting a portion of film at a time to the action of such rays, a liquid holder, film feeding means situated between the said holder and the said source of supply of film, a reciprocating film clamp, means for operating the clamp to engage the film, means for operating the clamp to release the film, and means for moving the film clamp with relation to the liquid holder, whereby the film carried thereby is subjected to the action of fluid in the liquid holder.

20. A photographing and developing apparatus having a casing provided with an opening for exposing film to light, containers for liquids within a portion of the casing, means for feeding film after ex-

25

130

posure into that portion of the casing having the containers for liquids, means between the feeding means and containers for gripping film, means for operating the gripping means to cause it to engage a film, means for causing the gripping means to move and draw film from one container of liquid to another, and means to cause the gripping means to release the film.

21. A photographing and developing machine having a casing provided with an opening for exposing sensitized paper, means within a portion of the casing for containing developing liquid, means for containing another liquid, means for feeding the sensitized papers after exposure into that portion of the casing having the containing means and above said containing means, means to grip the papers between the feeding means and the said containing means, means to shear the paper between said feeding means and the gripper to permit the paper to fall into the said containing means, means for causing the gripper to move and draw the paper from one containing means and dispose it over the liquid in another containing means and for returning said gripping means to its initial position, means to cause the gripper to release the paper and to permit it to fall flatwise into the liquid, means for returning the gripping mechanism to its initial position, and means for operating the said gripping mechanism to cause it to engage sensitized paper after it is returned to its initial position.

22. A photographing and developing apparatus comprising a casing provided with an opening for exposing sensitized paper, means within a portion of the casing for containing solutions, means for feeding the sensitized paper after exposure into that portion of the casing having the solution containers, means to grip the paper between the feeding means and said solution containers, means to shear the paper between said feeding means and the gripper, means for causing the gripper to move and draw the paper from one container to the other and dispose it over the solution to which it is last drawn, means to cause the gripper to release the paper and permit it to fall flatwise into the solution in the container to which it is last drawn, and means for operating the gripper to engage sensitized paper on its return to its initial position near the means for feeding the sensitized paper.

23. In a photographing and developing apparatus having a casing provided with an opening for exposing film, means in a portion of the casing for containing a solution, means for feeding film after exposure into that portion of the casing having the said means for containing a solution, means for stretching the film over the means for containing the solution, and

means for severing the film to permit it to fall into the solution.

24. In a photographing and developing apparatus having a casing provided with an opening for exposing sensitized paper, means within the casing to contain developing solution, means for containing fixing solution, means for feeding the sensitized paper after exposure into that portion of the casing having the means for containing the solution, means associated with the casing for cutting the paper, means for drawing film from one containing means to the other and for stretching said film over a container while said paper is being cut, to permit said paper to fall into a containing means.

25. A photographing and developing apparatus having a casing provided with an opening for exposing film to light, a solution container in a portion of the casing, means for delivering film to that portion of the casing having the container, means in the casing to grip the film delivered to the casing, and means for operating the gripping means to cause it to move with relation to the container and to carry the film in the solution.

26. In a photographing apparatus, the combination of means for holding a supply of film, constructed to protect said film from actinic rays of light, a container for liquid, film holding and suspending means supported wholly exterior to the liquid, and means for producing relative movement of the liquid and film holding means while the film suspended by the latter is in said liquid.

27. In a photographing apparatus, an inclosing casing adapted to hold a supply of film and having means for exposing portions of said film to light, a receptacle containing liquid, film holding and suspending means, a support for the last mentioned means always maintaining the film holding and supporting means exterior to the liquid in the receptacle, and means for producing relative movement of the film suspended from said holder and said liquid, whereby the suspended film is moved through the liquid in said receptacle.

28. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, a receptacle containing liquid, means for moving film from the means for holding the supply thereof, means exterior to the liquid for supporting the film after its delivery from the means for holding a supply of film, and means on which the means for supporting the film is movable, in such relation to the receptacle containing liquid as to move the film through the liquid.

29. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from

actinic rays of light, a receptacle containing liquid, film holding and suspending means, means for delivering film from the means for holding a supply of film to the film holding and suspending means, a support for the last mentioned means always maintaining the film holding and suspending means exterior to the fluid in the receptacle, and means for reciprocating said film holding and suspending means across said receptacle whereby film carried by the film holding and suspending means is subjected to the action of fluid in the receptacle.

30. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, a liquid holder, film holding and suspending means, means for transferring film from the means for holding a supply of film to the film holding and suspending means, a support for the film holding and suspending means above the liquid in the holder, and means for producing relative movement of said film suspended from said holding means and said liquid comprising a to and fro moving member whereby the film is subjected to the action of the liquid.

31. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, receptacles to which the film is delivered, means for delivering the film thereto, means mounted to reciprocate with relation to the receptacles and operative to transfer film from one receptacle to another, and means for cutting the film.

32. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, receptacles to which the film is delivered, means for engaging the film, means for moving the film engaging means lengthwise of the chamber, and means for cutting the film.

33. In a photographing apparatus, the combination of means for holding a supply of film, constructed to protect said film from actinic rays of light, a liquid holder, film feeding means situated between said holder and the source of supply of film, and a reciprocating film moving means situated to receive the film coming from said film feeding means to carry said film and subject the film to the action of a liquid in the liquid holder.

34. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, a liquid holder, film feeding means situated between said holder and the source of supply of film, and a reciprocating film clamp situated to receive the film coming from said film feeding means.

35. In photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, a liquid holder, film feeding means situated between said holder and the source of supply of film, a reciprocating film clamp, means for operating the clamp to engage the film, and means for operating the clamp to release the film.

36. In a photographing apparatus, the combination of means for holding a supply of film, a receptacle containing liquid, film holding and suspending means, means located adjacent the receptacle containing liquid for supporting the last mentioned means and maintaining the film holding and supporting means exterior to the liquid in the receptacle, the said film holding and suspending means comprising a to and fro movement member adapted to travel on the means for supporting the same for producing relative movement of the film suspended from said holder and said liquid whereby the suspended film is moved through the liquid in said receptacle.

37. In a photographing apparatus, the combination of means for holding a supply of film, a receptacle containing liquid, film holding and suspending means, means for delivering film from the means for holding a supply of film to the film holding and suspending means, a support adjacent to the receptacle containing liquid, said film holding and suspending means being supported thereby for maintaining the film holding and suspending means exterior to the fluid in the receptacle, and means for reciprocating said film holding and suspending means on the support across said receptacle.

38. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, a liquid holder, film holding and suspending means, a support for the latter above the liquid holder, means for delivering film from the means for containing a supply thereof to the film holding and suspending means, and means for producing relative movement of said film suspending means and the liquid holder, for carrying the film through the fluid in the holder.

39. In a photographing apparatus, the combination of means for holding a supply of film constructed to protect said film from actinic rays of light, a liquid holder, film feeding means situated between said holder and the source of supply of film, a reciprocating film moving means, means for supporting the reciprocating film moving means, situated in proximity to the liquid holder and in position to subject the film to the action of the liquid, said film supporting means adapted to travel on the said support across the liquid holder.

40. In a photographing and developing apparatus, an inclosing casing adapted to contain a supply of film and having means for exposing portions of said film to actinic light, receptacles within the casing for containing developing fluids, a reciprocating developing means operative to develop said exposed film, means for delivering the film from the exposing means to the reciprocating developing means, and means for severing the film.

41. In a photographing and developing apparatus, an inclosing casing adapted to contain a supply of film and having means for exposing portions of said film to actinic

light, receptacles within the casing for containing developing fluids, reciprocating means operative to subject said exposed portions of film to the action of the fluids within said receptacles, means for delivering the film from the exposing means to the reciprocating means, and means for severing the film.

In testimony whereof I affix my signature in the presence of two witnesses this 15th day of March, 1907.

GEORGE C. BEIDLER.

Witnesses:

LATTES E. BARKLEY,

WILFRED E. LAWSON.