G. C. BEIDLER.

MACHINE FOR EXPOSING AND DEVELOPING SENSITIVE FILMS.

APPLICATION FILED APR. 9, 1906.

1,168,466.

Patented Jan. 18, 1916.

4 SHEETS—SHEET 1.

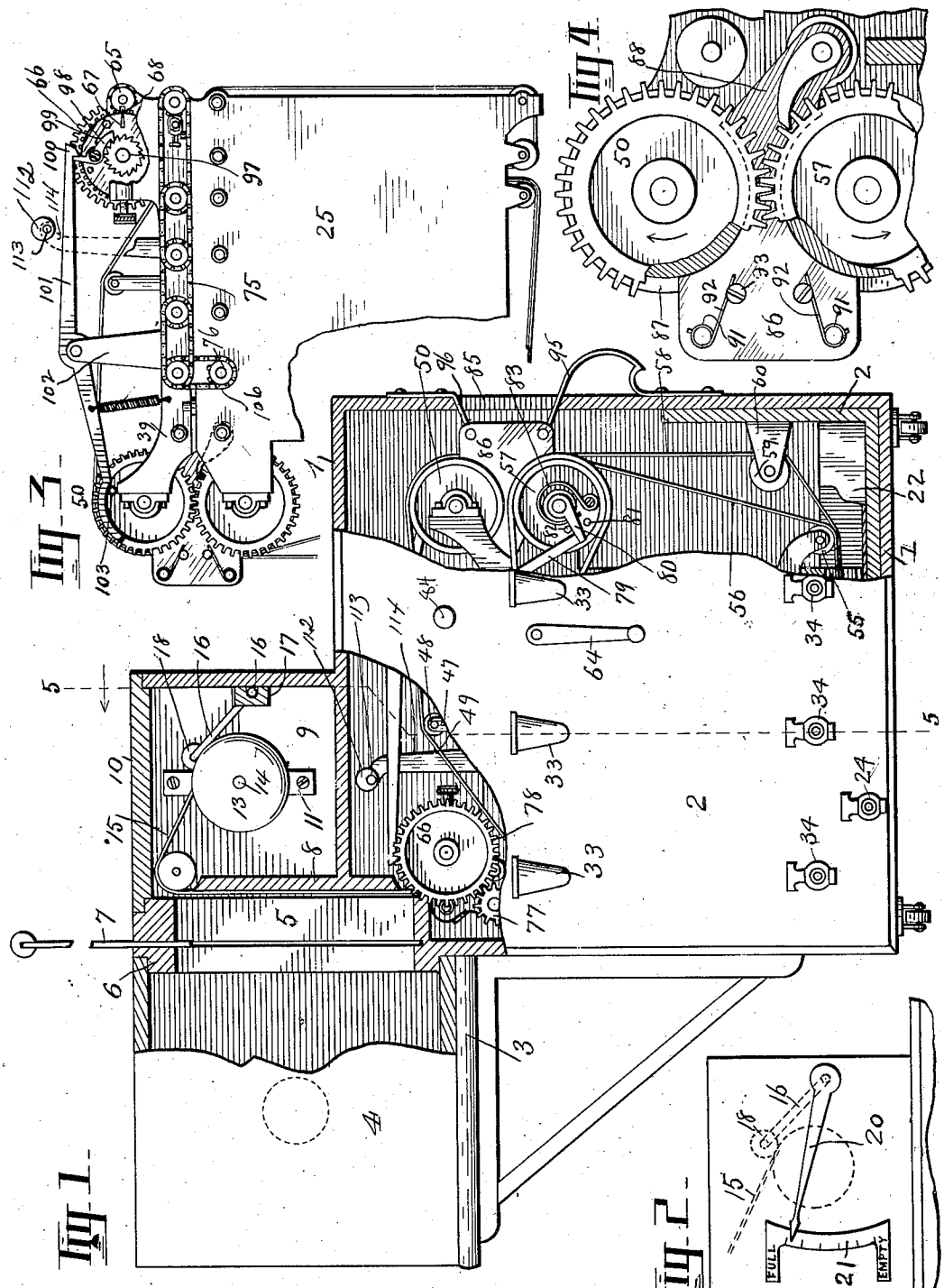

Fig. 1.

Fig. 3.

Fig. 4.

Fig. 2.

Witnesses:-
Ray Wood.
J. H. Hubble

Inventor:-
George C. Beidler.
By Frank P. Shepard, Atty.

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Fig. 4.

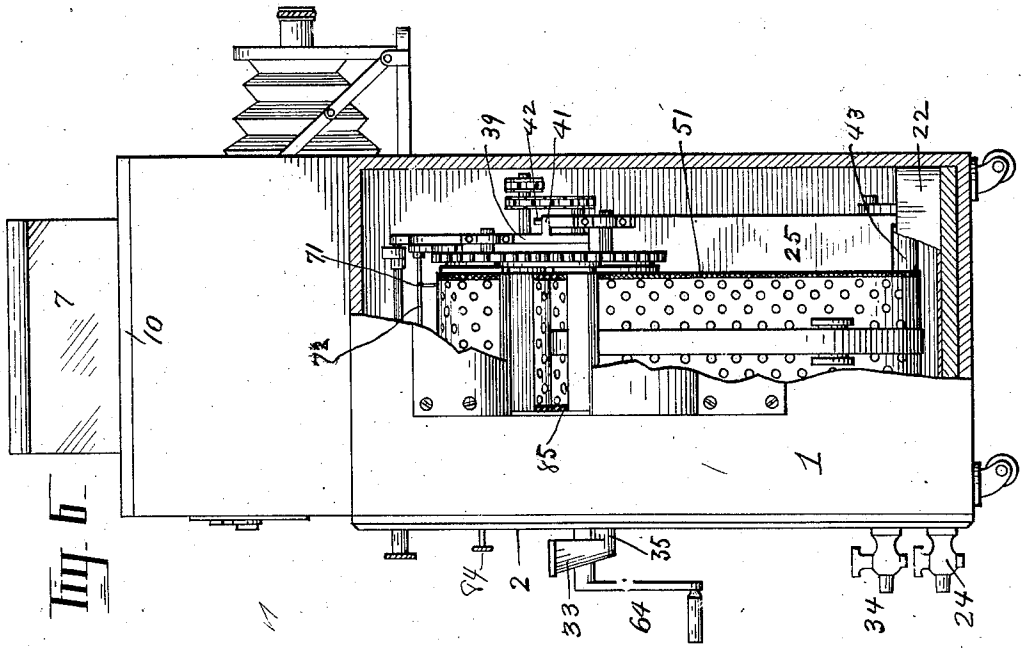
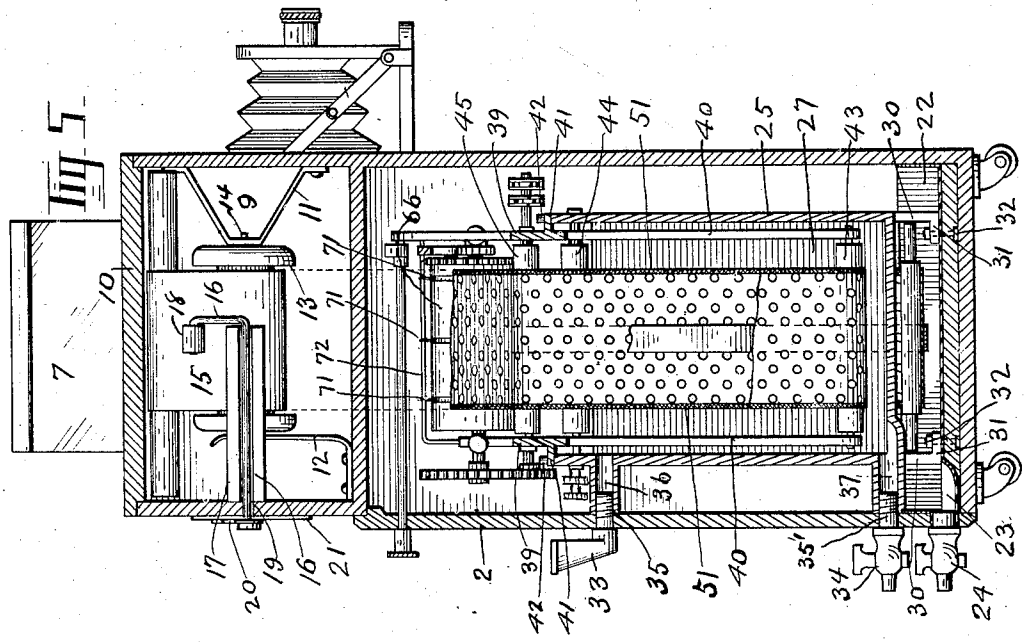


Fig. 5.



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4 SHEETS—SHEET 3.

Fig. 8.

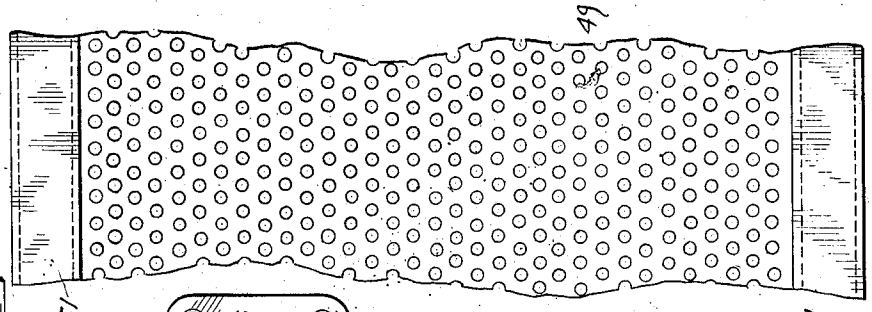
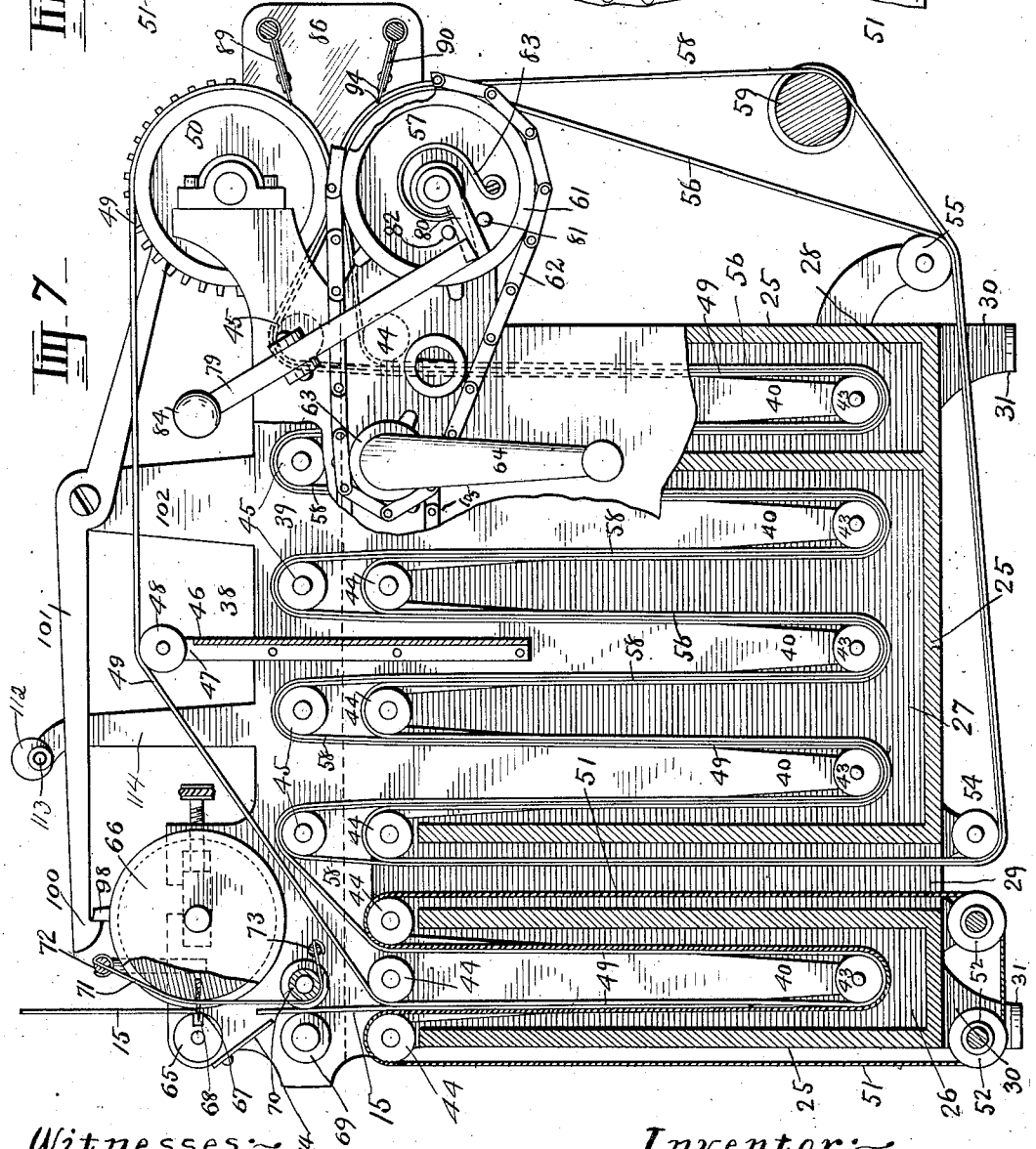


Fig. 7.



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4 SHEETS—SHEET 4.

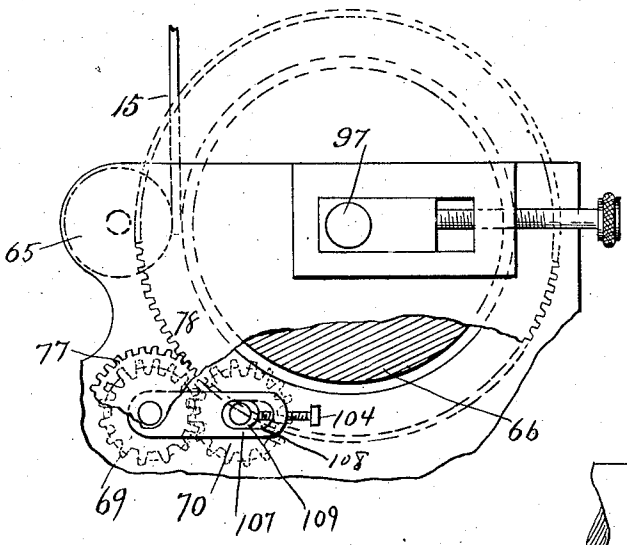
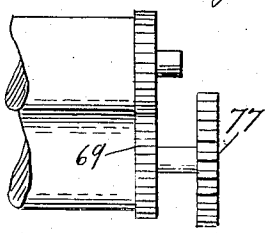


Fig. 9.

Fig 13



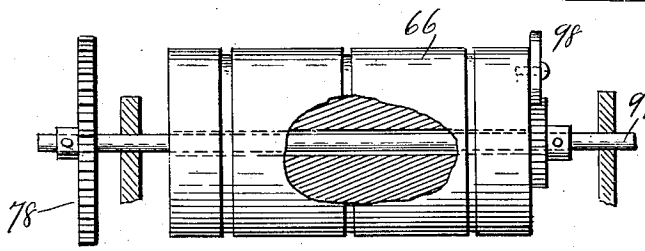


Fig. 10.

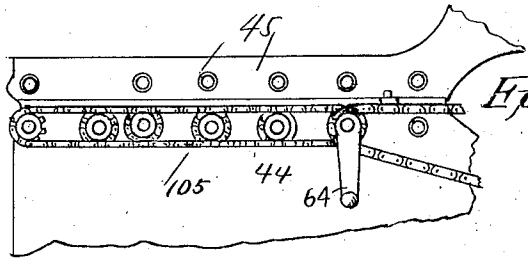
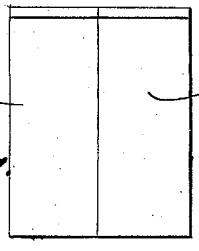


Fig. 11.

Fig. 12.



Inventor

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Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE C. BEIDLER, OF OKLAHOMA, OKLAHOMA.

MACHINE FOR EXPOSING AND DEVELOPING SENSITIVE FILMS.

1,168,466. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed April 9, 1906. Serial No. 310,732.

To all whom it may concern:

Be it known that I, GEORGE C. BEIDLER, a citizen of the United States of America, residing at Oklahoma, in the county of Oklahoma, State of Oklahoma, have invented certain new and useful Improvements in Machines for Exposing and Developing Sensitized Films, of which the following is a specification.

This invention relates to new and useful improvements in machines for exposing and developing sensitized films and is an improvement on a prior patent of applicant numbered 810,388, issued January 23, 1906.

This invention is thought to contain advantages over the prior patent and it has for an object to provide novel means whereby the film, after being cut, is drawn within the developing apparatus. This object is attained by the use of rollers and in conjunction with these rollers I provide means for guiding and delivering the severed film to the drawing rollers.

It is also an object of this invention to provide, in conjunction with perforate belts for conveying the severed films, means whereby the fluid is permitted to freely contact with the film. This is attained by having one face of the film engaged by a series of cords or bands, said cords or bands being positioned between two perforate aprons; although it may be well to mention that one of the aprons may be omitted, a feature which is employed within that compartment containing the developing fluid proper.

Furthermore, the invention provides means at the discharge opening of the apparatus for holding the severed film against any undue lateral movement, with relation to the aprons or conveyer. This is done to prevent the film from contacting with any of the operating elements of the apparatus and thereby interfere with or hinder its workings.

It is also an object of this invention to provide means positioned at or near the discharge opening of the apparatus for positively releasing the severed films from the aprons or conveyers. At times the severed films may have a tendency to follow either of the aprons or the bands and fail to discharge through the opening, but by this provision of means such a disadvantage is entirely obviated.

It is also an object of the invention to provide novel driving means for the several parts and a novel stopping mechanism.

Finally an object of this invention is to produce a device of the character noted, possessing advantages in points of simplicity, efficiency and durability, proving at the same time comparatively inexpensive to produce and maintain.

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 rear elevation of a complete machine, with parts broken away to expose the interior construction. Fig. 2, is an elevation view of a portion cut away in the upper part of Fig. 1. Fig. 3, is a fragmentary view in elevation of the opposite side of the mechanism exposed in Fig. 1. Fig. 4, is an enlarged elevation of the upper left hand corner of Fig. 3, with portions cut away. Fig. 5, is a sectional view taken on the line 5—5 of Fig. 1, looking in the direction of the arrow. Fig. 6, is an end elevation of the machine with portions cut away. Fig. 7, is an enlarged view, partly in elevation, and partly in section, of the interior mechanism of the machine. Fig. 8, is a fragmentary enlarged plan view of an apron employed in the machine. Fig. 9, is an enlarged detail view showing the gearing for driving the drawing rollers. Fig. 10, is a view in elevation partly in section showing the means for mounting and driving the large drawing and cutting roller. Fig. 11, is a detail view. Fig. 12, is a plan view of the sectional slide. Fig. 13, is a plan view of a fragment of the drawing rollers, showing their co-acting gears.

In the drawings, 1, denotes a casing of

wood or other material having one of its slides open. Fitting within the casing is a drawer 2, which rests on the bottom of the casing and closes the open side thereof. The casing 1, is provided on one of its ends with a shelf 3, upon which rests the camera 4. This camera is provided with an exposing chamber 5, similar to the ordinary plate holder. The chamber 5, is provided with the usual flange or nipple 6, to engage the camera and is also provided with the light excluding slide 7. The exposing chamber has a wall 8, which acts as a back for the film while being exposed. Positioned behind the wall 8, is a film chamber 9, having a removable door or cover 10. The chamber 9, is provided with a metal bracket 11, and a resilient metal arm 12, for engaging and rotatably supporting a spool 13. This spool is intended to hold the sensitized film to be exposed. It may be well to mention that the spool 13, is provided with pintles 14, which pass through openings in the bracket 11 and arm 12, from which said pintles are removable by springing said arm outward. The force exerted by the resilient arm 12, presses the spool 13, when in operative position, against the bracket 11, and retards the rotation of said spool and thereby tends to keep the film 15, taut while being exposed or drawn through the exposing chamber 5.

In order that the operator may know the amount of film 15, upon the spool 13, without removing the door 10, an angular arm 16, is employed. This arm is formed preferably of stiff wire, and it extends within the chamber 9, transversely of the spool 13, and is loosely mounted in a block or sleeve 17, held by a wall of the chamber 9. The inner portion of the arm 16, is bent at approximately right angles and has mounted on its free end a roller 18, intended to contact with the film 15, upon the spool. It is to be observed that the extreme end portion of the arm 16, is again bent at right angles to lie parallel with its main portion and it is upon this second bent portion that the roller 18, is mounted. The opposite end of the arm 16, extends through an opening or aperture 19, in a wall of the chamber 9, and has thereon a pointer or indicator 20, which acts in conjunction with a graduated arc 21, arranged on the exterior surface of the said wall. The roller 18, by gravity, contacts at all times with the film and as the film is unwound from the spool, the turning of the angular arm 16, and the pointer 20, acting in conjunction with the arc 21, will readily show the amount of film upon the spool, as will be clearly understood. The block or sleeve 17, is preferably positioned on the wall of the chamber 9, on a plane below the bearings of the spool and the angular portion of the arm 16, extends upward.

Within the casing 1, and resting on the bottom of the drawer 2, is a drip pan 22, which has in its front edge, a depression 23, fitting within a similar depression in the bottom of the drawer. Communicating with this depression and held by the front of the door, is a cock or faucet 24, for the purpose of allowing the drippings or drainage within the pan 22, to be readily withdrawn. The fluid within the pan will have a tendency to collect within the depression, hence the advantage of such depression will be readily appreciated. It may be well at this point to mention that the drippings caught by the pan are from that portion of the apparatus arranged exteriorly of the tray (to be hereinafter described).

Resting upon and within the pan 22, is a developing tray 25, divided transversely into a series of compartments; said compartments being of any number required by the necessity of practice, but preferably three, indicated by the reference numerals 26, 27, and 28. The compartment 26, is shown entirely independent of the compartments 27 and 28, and is separated therefrom by an intervening space 29. The tray 25, is supported by the legs 30, which are provided with the feet 31. These feet are held in position by means of bolts 32, which pass through both the tray and the drawer bottom. These bolts not only hold the tray in position within the casing, but hold the pan 22, against displacement. Before the tray is applied within the casing, each of the bolts 32, is soldered to the bottom of the pan.

The tray 25, and all the parts attached thereto, are removable from the casing 1, of the drawer 2, without the necessity of disconnecting any part of the machine whatever. Each of the compartments 26, 27, and 28, is provided with a filling funnel 33, and a discharge cock or faucet 34. These funnels and cocks are arranged on the exterior face of the drawer front and are provided with tubular stems 35 and 35′, which pass through openings in said front and are threaded within the nipples 36 and 37, in the tops and bottoms, respectively, of the compartments. By this means the tray is further secured to the drawer.

Resting upon the upper edge of the tray is a framework 38, comprising the side pieces 39, having a plurality of depending fingers 40. The fingers of the frame extend within the compartments 26, 27, and 28, of the tray 25, and the exterior surfaces of the side pieces 39, are provided with flanges 41, which rest upon the upper edges of the tray and are secured thereto by the screws or bolts 42.

Journaled between the lower ends of the fingers 40, are the rollers 43, which extend transversely of the compartments; and journaled between the side pieces 39, is a second series of rollers 44, in staggered relation to

the rollers 43. Above the rollers 44, of the compartments 27 and 28, spaced therefrom, and in vertical alinement therewith, are rollers 45, having diameters equal to the diameters of the rollers 44. Secured to the side pieces 39, approximately centrally of the compartment 27, and projecting above the upper edge thereof is a cross plate 46, which has extensions 47, on its opposite sides, between which is mounted a roller 48. Passing around the rollers 43, one of the rollers 44, and the rollers 45, is an endless apron or belt 49, which also passes around the upper apron driving roller 50. Acting in conjunction with the apron 49, when passing through the compartment 26, is a series of cords or bands 51. These bands contact with a surface of the apron and pass around the rollers 44, to either side of the compartment 26, and around the rollers 52, stationed beneath the bottom of the tray 25; said bands passing through the intervening space 29, before mentioned. By employing the cords, the developing solution within the compartment 26, is allowed to come more perfectly into contact with the film than it could, if the film were betw[illegible] two aprons.

The apron 49, is formed of rubber or other yieldable material and the apron is provided throughout its length, with transverse rows of perforations quincuncially arranged. The width of the apron is greater than the width of the film 15. By being yieldable it is allowed to compensate and adjust itself to the film, when said film is being carried thereby, in conjunction with the bands 51. In order to hold the aprons against longitudinal "stretch," non-yieldable bindings are stitched or otherwise secured along the longitudinal edges of said aprons, said binding, being preferably of rubber coated tape.

Passing around the remaining rollers 43 and 44, through the space 29, and around the rollers 54 and 55, held by the tray, is a second endless apron 56, of similar construction to the apron 49. This apron also passes around a second or lower apron driving roller 57, which meshes with the roller 50, and rotates in unison therewith. The roller 57, is also of the same diameter as the roller 50.

Moving with the apron 56, and acting in conjunction therewith, is a series of bands or cords 58, which pass around the same rollers as the apron 56, except at the top of the compartments 27 and 28, where it extends upward and passes around the rollers 45, beneath the apron 49. While the aprons 49 and 56, are passing through the compartments 27 and 28, it is to be noticed that the bands 58, are traveling therebetween. This permits a freer motion of the fluid on the film and the effect and advantages of the fluid is greatly enhanced. By having the bands or cords and one of the aprons pass over the upper roller 45, the aprons are not required to pass over the rollers in direct and forcible contact with each other. Thus I obviate the possibility of one apron expanding, or the other contracting; nor can one apron slide upon the other in passing over the rollers. This, in practice, has been found of great benefit and may be considered one of the essential features of the invention. The bands 58, are also separated or disengaged from the apron 56, at a point on the exterior of the tray. This is done to permit the draining of the aprons and at the same time of the bands. These bands pass around the roller 59, suitably mounted in brackets 60, carried by the inner end of the drawer 2.

One end of the lower apron driving roller 57, is provided with a sprocket 61, over which passes a chain 62, which also engages a smaller sprocket 63, mounted on one of the rollers 44. This latter sprocket 63, is provided with an operating crank 64, on the exterior of the drawer front. It is thought plainly apparent that the rotation of the crank 64, will cause the aprons 49 and 57, and their coacting bands, to pass through their respective compartments.

Mounted with their faces closely approaching each other, and arranged beneath the wall 8, are two rollers 65 and 66, said rollers being mounted in the side pieces 39, of the frame 38. These rollers are of different diameters and the larger roller 66, is adjustable longitudinally of the receptacle with relation to the smaller roller 65. These rollers contact one with the other and their surfaces are jacketed with rubber or other suitable material, so that their contact is slightly yieldable. The peripheral measurements of the rollers 65 and 66, must be commensurate with each other, so that a given point on the larger roller will always meet the same point on the smaller roller. This arrangement is required to allow the use of a cutting or severing blade 67, which projects from the face of the larger roller, and which passes the smaller roller by dropping into the receiving groove 68. These rollers 65 and 66, are for the purpose of severing the film 15, passing therebetween at regular intervals, the same being determined by the size of the larger roller.

Positioned beneath the rollers 65 and 66, are two smaller rollers 69, and 70, which have their contacting or opposing faces in vertical alinement with the contacting or opposing faces of the rollers 65 and 66. These rollers are intended to grip the film after it has passed between the rollers 65 and 66, and draw the same downward after the film has been cut or perforated by the blade 67. These rollers direct the severed film between the apron 49, and the bands

51, by which medium it is carried through the compartment 26. The film is then delivered or forced between the apron 49, and the bands 58, and carried thereby through the compartments 27 and 28, acting in conjunction with the apron 56. The aprons 49 and 56, being perforated, allow the fluid within the compartments to have easy access to the film and the action of said fluid, as before stated, is further enhanced by having the separating cords or bands 58, interposed between the aprons. It is immaterial which of the two aprons 49 or 58, the severed film follows, but it must for the efficiency of practice, limit itself to the one apron and it has been found in practice that that apron is generally the upper apron, a feature which is caused by the fact that the action of the fluid on the film causes the same to coil or curl in such a manner as to grip or bind against the upper apron.

The larger roller 66, is grooved as is likewise the inner roller 70. These grooves are arranged preferably near the opposite edges and approximately centrally of the rollers, although of course their positions may be varied. Fitting within the grooves are the wires or rods 71, which are secured at their upper ends to a cross bar 72, and at their lower end to a cross bar 73. The upper bar has its end portion turned down to form a yoke which fits within and is held by the upper edge of the side pieces. These bars hold the rods against displacement and act as guides for the film after passing the rollers 65 and 66, between the rollers 69 and 70. As a further guide for the film 15, a downwardly inclined plate 74, is employed. This plate is secured to the end of the side pieces 39, and terminates at a point adjacent the contacting faces of the rollers 69 and 70. Thus it can be seen that the film 15, must contact with the rollers 69 and 70, and take its course through the compartments of the tray.

The roller 69, is positively driven by a line of link belting 75, as plainly shown in Fig. 3, the same deriving its motion from the roller on which the sprocket 63, is mounted. The end of said roller opposite the sprocket 63 is provided with a second sprocket 76, which is engaged by the link belting 75. The opposite end of the roller 69, is provided with a cog wheel 77, which meshes with a larger cog wheel 78, on the larger roller 66. Thus it can be said that the cutting rollers derive their power and are positively driven by the drawing rollers.

The size of the lower apron driving roller 57, is of such diameter that one revolution thereof is sufficient to cut a film and immerse it within the developing fluid of the compartments of the tray. To indicate to the operator when such has occurred, a stopping mechanism is provided, which comprises a lever 79, pivoted intermediate its length to the tray 25, and has its lower end contacting with an arm 80, on the shaft or pintle of the roller 57. This arm is positioned between the two lugs 81 and 82. A coiled spring 83, is carried by the roller 57, and contacts with the arm 80, and tends to hold the same normally in engagement with the pintle or lug 82. The opposite end of the lever 79, is provided with a finger button or knob 84. As the roller revolves, the arm 80, abuts the lever 79, and after abutting said lever, said roller revolves slightly until the arm contacts with the pin 81. When the button 84, is pressed the lower end of the lever swings outward and allows the arm 80, to swing forward until it abuts the lugs 82, in obedience to the action of the spring 83. After this movement of parts, the lever 79, cannot again lock the movement of the roller until the next revolution, hence it is not necessary to continue the pressure on the button 84.

The apron driving rollers 50 and 57, are arranged adjacent to a discharge opening 85 in the casing, and it is through this opening that the aprons eject the severed film. In order to hold the aprons and the film from any possible lateral movement which would permit said film to interfere with the operating mechanism of the driving rollers, as by contact with the gears thereof, guide plates 86, are provided. These plates have approximately semi-circular cut away portions in their opposite edges near the inner end. These cut-away portions fit within the grooves 87, of the rollers and are thereby retained in place. To further hold these plates 86, in position, an extension 88, is arranged on the inner edge of each plate which extends parallel and contacts with the side frame 39. These plates are engaged by the pintles of one of the rollers 44, more especially of that roller adjacent the apron driving rollers. Pivoted to and arranged between these plates 86, are wings 89 and 90, the wing 89, contacting with the upper roller 50, while the wing 90, contacts with the lower roller 57. These wings are held normally in contact with their rollers by the springs 91, arranged exteriorly of one of the plates 86. The springs are preferably spiral and embrace the pintles of the wings, each spring having an extension 92, which bears against a screw or other abutment 93, whereby the required action may be given the spring. The wings are made preferably of sheet metal and are secured rigidly to revoluble shafts by being folded around said shafts and soldered or riveted thereto. The web 94, of rubber, celluloid, or other flexible material is embedded between the ends of the wings. These webs 94, are intended to bear yieldingly against the aprons passing

around the rollers 50 and 57, and are intended to prevent the severed film from following either of these aprons beyond the driving rollers and assure a positive delivery of the film through the discharge opening 85. Additional guiding means 95 and 96, are carried by the casing and extend through the opening 85, and terminate adjacent the plates 86. These guiding means comprise in their construction, plates of the same width as the discharge opening 85, as will, it is thought, be readily understood. It may be here mentioned that the discharge opening 85, is slightly longer than the width of the film to be discharged therethrough.

The larger cutting roller 66, has acting in conjunction therewith, a ratchet wheel 97, which is fixed on the shaft and rotates therewith. A detent is pivoted on the end of the roller 66, and when in engagement with the ratchet wheel, the motion of the ratchet wheel is communicated to the roller. The roller 66, is loosely mounted on its shaft and hence when the detent is out of engagement with the ratchet, the shaft is free to rotate without communicating motion to the roller. The hooked end of the detent is held normally in engagement with the ratchet wheel by means of the spring 99. The opposite end of the detent is engaged by a hook 100, on the end of the lever 101, which disengages said detent from the ratchet wheel and thus discontinues the movement of said roller 65, until a period of action of the other parts of the machine is completed. The lever 101, is pivotally secured, intermediate its length, to a lug or standard 102, projecting upward from the tray 25, and its end opposite the hook 100, lies in the path of a projecting pin 103, carried by the apron driving roller 50, so that at each revolution of said roller 50, the pin 103, trips said lever and causes the hook 100, to release the detent 99. By this arrangement the cutting roller 66, is disengaged from its driving mechanism, and said roller with its coacting roller 65, keeps the film 15, stretched taut in the exposure chamber 9, for another exposure while the severed portion of the film is being drawn down into the developing tray, but as this arrangement forms no feature of the present invention and is fully described and shown in applicant's former patent, a further detailed description of the operation is thought unnecessary.

While throughout the specification and claims annexed hereto, the term "film" is used, it is to be understood that this expression is intended to be construed sensitive paper, or any other material used for reproducing by action of the light.

While it has been previously described that the larger roller 66, derives its motion from one of the drawing rollers, it is to be stated that the ends of the rollers adjacent the cog wheel 77, are provided with meshing gears. This causes the drawing rollers 69 and 70 to operate in unison, and at the same time obviate the possibility of the roller slipping on the sensitive surface of the paper. This arrangement of having both of the drawing rollers positively driven also assures the proper feeding of the severed film, as will, it is thought, be fully appreciated.

The roller 70 is adjustable with relation to the roller 69, by means of the screws 104, which are threaded in bosses 107, formed on the sides of the frame. The bosses have slots 108, in which boxes 109, are slidable, the said screws being connected to the boxes.

While the plates 86, have been described as a prevention of lateral movement of the severed film with relation to the aprons, these plates also hold the aprons proper from contacting with the operating mechanism, which function is attained by having these plates 86, positioned between the operating mechanism of the apron driving rollers and the aprons. This arrangement is considered an important feature of the invention, as the aprons in their travel, around the apron driving rollers have a tendency to slide on said rollers, and said movement without the obstructing plates 86, would cause the aprons to contact with the operating mechanism and interfere with the operation of the invention.

The rollers 44 and 45, are positively driven, the manner of rotating the lower series of rollers being previously set forth. Adjacent the sprocket 63, and rotating therewith, is a second sprocket which is engaged by chains 105, which engage the sprocket wheel on the next succeeding roller 44. All of these rollers are connected one to the other in a similar manner. The upper chain line drives the roller 69, which, as before described, has a gearing 77, meshing with the gearing 78, on the cutting roller which imparts the necessary movement to said roller 66. The upper series of rollers 45, and the lower series 44, are caused to rotate in unison by means of the vertical chain 106, plainly shown in Fig. 3. For convenience of construction and operation, the driving chain of the upper rollers is to one side of the apparatus, while the driving gear of the lower rollers is to the other side of the apparatus. For a positive operation of the device, it is necessary that all the rollers 44 and 45, should rotate in unison, and at the same rate of speed, and by this chain of gearing this result is attained.

While I have described the apron 49, as comprising rubber or other yieldable material, I find in practice that a fibrous webbing having faces of rubber is admirably adapted for the use and will withstand unusual and prolonged wear.

I have shown in the detail view Fig. 11, means for driving the rollers 44, through the medium of the chain gearing operated by the crank 64.

It is often desirable to print one page of a book instead of two pages at one time and in order to provide for this action I may utilize a slide made in two sections 110 and 111 which is used in connection with the camera. By putting half of the slide over the film but one half of the film is exposed and then by transferring the slide to the exposed half of the film the unexposed half may be utilized on another exposure.

In cases where it is desired to run a single portion of film through the developing solution without following it by other portions in regular order, the eccentric stop or cam 112, is turned down against the lever 101, so as to stop all further revolution of the roller 66, and when the lever 101, is thus locked, its elastic properties will allow the pin 103, of the roller 50, to pass it. This eccentric or cam is secured to a spindle 113, which is mounted in the standard 114, projecting upward from the receptacle. Although not shown any suitable means may be employed for turning the spindle, but as this forms no important feature of the present invention, a further detail is thought unnecessary. This arrangement has been covered in my former Patent Number 810,388.

Having fully described my invention what I claim as new and desire to secure by Letters Patent, is—

1. In a photographic and developing apparatus, a receptacle for fluid, a flexible apron and a means for holding film thereon movable in close relation to each other for carrying the film in the receptacle, means for moving the apron and the means for holding the film thereon, and means for separating the apron from the means for holding the film thereon.

2. In a photographic and developing apparatus, receptacles for fluid, flexible aprons movable in the receptacles, means for moving the aprons, and means traveling with the aprons for holding film thereon.

3. In a photographic and developing apparatus, receptacle for fluid, flexible aprons movable in the receptacles, means for moving the aprons, and bands traveling with the aprons and operating to hold the film thereon.

4. In a photographic and developing apparatus, a casing, a receptacle therein for containing fluid, said receptacle being divided into compartments, certain of said compartments being separated from the remainder, an apron passing through all of the compartments, flexible means traveling with the apron through the first of the compartments, a second apron traveling with the first named apron through the remainder of the compartments, and means for moving the aprons and flexible means.

5. In a photographic and developing apparatus, a casing, a receptacle therein for containing fluid, said receptacle being divided into compartments, certain of said compartments being separated from the remainder, an apron passing through all of the compartments, flexible means traveling with the apron through the first of the compartments, a second apron traveling with the first named apron through the remainder of the compartments, bands also traveling with the aprons through the last named compartments, and means for moving the aprons and bands.

6. In a photographic and developing apparatus, a casing, a receptacle therein for containing fluid, said receptacle being divided into compartments, certain of said compartments being separated from the remainder, an apron passing through all of the compartments, flexible means traveling with the apron through the first of the compartments, a second apron traveling with the first named apron through the remainder of the compartments, bands also traveling with the aprons through the last named compartments, said bands being interposed between the aprons, and means for moving the aprons and bands.

7. In a photographic and developing apparatus, a receptacle, flexible aprons movable in the receptacle, means carried by the receptacle for separating the aprons one from the other above the receptacle, and means for moving the aprons.

8. In a photographic and developing apparatus, a casing, a receptacle therein for containing fluid, flexible aprons movable in the receptacle, means carried by the receptacle for separating the aprons one from the other at predetermined intervals above the receptacle, and means for moving the aprons.

9. In a photographic and developing apparatus, a casing, a receptacle therein for containing fluid, rollers carried by the receptacle, aprons passing through the receptacle and around the rollers, said rollers being positioned to separate the aprons at intervals above the receptacle, and means for moving the aprons.

10. In a photographic and developing apparatus, a casing, a receptacle therein, aprons passing through the receptacle and traveling around the exterior thereof, a pan within the casing to receive the drippings from the aprons, means for draining the pan, and means for moving the aprons.

11. In a developing apparatus, a casing, a drawer working within the casing, a pan resting on the drawer, a drain cock communicating with the pan through the front of the drawer and holding the pan against displacement, and additional means passing

through the bottom of the pan and the drawer for holding the drawer against displacement.

12. In a developing apparatus, a casing, a drawer working within the casing, a pan resting on the bottom of the drawer, a receptacle, legs for the receptacle resting on the pan, and bolts passing through the legs of the receptacle, the pan and the bottom of the drawer for holding the pan and receptacle against displacement.

13. In a developing apparatus, a casing, a drawer working within the casing, a pan resting on the bottom of the drawer, a receptacle, legs for the receptacle resting on the pan, bolts passing through the legs of the receptacle, the pan and the bottom of the drawer for holding the pan and receptacle against displacement, and additional means for securing the bolts to the pan.

14. In a developing apparatus, a casing, a drawer working within the casing, a pan resting on the bottom of the drawer, a receptacle, legs for the receptacle resting on the pan, bolts passing through the legs of the receptacle, the pan and the bottom of the drawer for holding the pan and receptacle against displacement, said bolts being soldered to the pan.

15. In a developing apparatus, a casing, a drawer working within the casing, said drawer having a depression, a pan in the drawer, said pan having a depression registering with the depression of the drawer, and a cock communicating with the depression of the pan.

16. In a developing apparatus, a casing, a drawer working within said casing, said drawer having a depression in its bottom along its front edge, a pan in the drawer having a depression registering with the depression of the drawer bottom, and a cock passing through the front of the drawer and communicating with the depression of the pan.

17. In a photographic and developing apparatus, a receptacle to contain fluid, an apron passing through said receptacle, a cross plate carried by the receptacle, said plate acting as a guide for the apron, and means for moving the apron.

18. In a photographic and developing apparatus, a receptacle to contain fluid, an apron passing through said receptacle, a cross plate carried by the receptacle, extensions on the plate, a roller mounted between the extensions and adapted to engage the apron and guide the same, and means for moving the apron.

19. In a photographic and developing apparatus, a receptacle to contain fluid, an apron passing through said receptacle, a cross plate carried by the receptacle, a roller carried by the upper end of the plate, said roller being adapted to engage the apron and guide the same, and means for moving the apron.

20. In a photographic and developing apparatus, a receptacle to contain fluid, an apron passing through said receptacle, a cross plate carried by the receptacle and extending thereabove, said plate acting as a guide for the apron and means for moving the apron.

21. In a photographic and developing apparatus, a receptable to contain fluid, aprons passing through said receptacle for conveying an article, means for operating the aprons, means independent of the aprons and the apron operating means for obstructing the travel of the article carried by each apron, and means for moving the aprons.

22. In a photographic and developing apparatus, a receptacle to contain fluid, a frame carrying the operating mechanism of the device, said frame being provided with flanges resting on the upper edges of the receptacle and means engaging the flanges and the receptacle for holding the frame to the receptacle.

23. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, driving rollers for operating the aprons, means for rotating the rollers, and means acting in conjunction with one of the rollers for obstructing the rotation of the roller.

24. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, driving rollers for operating the aprons, means for rotating the rollers, and a lever acting in conjunction with one of the rollers to obstruct the rotation thereof.

25. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, driving rollers operating the aprons, means for rotating the rollers, and a lever carried by the receptacle acting in conjunction with one of the rollers for obstructing the rotation thereof.

26. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, and a lever pivoted intermediate its length acting in conjunction with one of the rollers for obstructing the rotation thereof.

27. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, means acting in conjunction with the rollers for obstructing the rotation of the rollers, and means for removing the obstruction.

28. In a photographic and developing apparatus, a receptacle to contain fluid, aprons

movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, and a lever pivoted intermediate its length to the receptacle and movable laterally thereof, one end of the lever engaging a part of the roller moving mechanism obstructing the rotation of the rollers.

29. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, and a lever pivoted intermediate its length to the receptacle, one end of said lever movable into and out of position to contact with one of the rollers for obstructing the rotation thereof.

30. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, an arm mounted adjacent one of the rollers and movable therewith, and means movable into and out of position to contact with the arm for obstructing the rotation of the roller.

31. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, and means contacting with the arm to obstruct the rotation of the roller.

32. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, means movable into and out of position to contact with the arm to obstruct the rotation of the roller, and means for imparting movement to the arm.

33. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, means movable into and out of position to contact with the arm to obstruct the rotation of the roller, and means for imparting movement to the arm independent of the rotation of the roller.

34. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers, means movable into and out of position to contact with the arm to obstruct the rotation of the roller, and means for imparting a movement to the arm independent of the movement caused by the movement of the contacting means.

35. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers, and movable therewith, means movable into and out of position to contact with the arm to obstruct the rotation of the roller, and a spring carried by the roller contacting with the arm for imparting a movement thereto independent of the rotation of the roller.

36. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, means movable into and out of position to contact with the arm to obstruct the rotation of the roller, means for imparting a movement to the arm independent of the rotation of the roller, and lugs for limiting the independent movement of the arm.

37. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, means movable into and out of position with the arm to obstruct the rotation of the roller, means for imparting a movement to the arm independent of the rotation of the roller, and lugs arranged on either side of the arm for limiting the movement of the arm.

38. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers, and movable therewith, means movable into and out of position with the arm to obstruct the rotation of the roller, means for imparting a movement to the arm independent of the rotation of the roller, and lugs for limiting the independent movement of the arm.

39. In a photographic and developing apparatus, a receptacle to contain fluid, aprons movable through the receptacle, rollers for operating the aprons, means for rotating the roller, an arm loosely mounted adjacent one of the rollers and movable therewith, means movable into and out of position with the arm to obstruct the rotation of the roller, means for imparting a movement to the arm independent of the rotation of the rollers, and lugs carried by the roller for limiting the independent movement of the arm.

40. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing, aprons for conveying the film passing through said receptacle and discharging the film through said opening of

the casing, means for operating the aprons, and means independent of the aprons and the apron operating means for preventing undue lateral movement of the apron with relation to the casing.

41. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing, aprons for conveying articles passing through said receptacle and discharging the articles through said opening of the casing, and plates arranged adjacent the aprons where they approach the discharge opening of the casing for preventing undue lateral movement of the aprons.

42. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing, aprons for conveying articles passing through said receptacle and discharging the articles through said opening of the casing, plates arranged adjacent the aprons where they approach the discharge opening of the casing for preventing undue lateral movement of the aprons, and extensions on the plates secured to the receptacle to hold said plates in position.

43. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing, aprons for conveying articles passing through said receptacle and discharging the articles through said opening of the casing, and plates arranged adjacent the aprons where they approach the discharge opening of the casing for preventing undue lateral movement of the aprons, and means for holding the plates against displacement.

44. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing, aprons for conveying articles through said receptacle and discharging the articles through said opening of the casing, drums for operating the aprons, and means for preventing undue lateral movement of the aprons, said means being held in position by the drums.

45. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing, aprons for conveying articles through said receptacle and discharging the articles through said opening of the casing, drums for operating the aprons, and plates for preventing undue lateral movement of the aprons, said plates being held in position by contacting with the drums.

46. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing, aprons for conveying articles through said receptacle and discharging the articles through said opening of the casing, drums for operating the aprons, said drums being provided with peripheral grooves, and means fitting within the grooves of the drums for preventing undue lateral movement of the aprons.

47. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing, aprons for conveying articles through said receptacle and discharging the articles, plates for preventing undue lateral movement of the aprons, said plates having recessed portions engaging the drums for holding the plates against displacement.

48. In a photographic and developing apparatus, a receptacle to contain fluid, conveyer aprons passing through the receptacle, means for operating the aprons, and means independent of the aprons and the apron operating means for preventing any undue lateral movement of an article carried by the aprons.

49. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing to contain fluid, aprons for conveying an article passing through the receptacle and discharging the article through the opening of the casing, means for operating the aprons, and means independent of the aprons and the apron driving means for preventing the aprons conveying the article beyond the said discharge opening.

50. In a photographic and developing apparatus, a receptacle for fluid, flexible aprons movable in unison in the receptacle, means for moving the aprons and continuous means traveling with the aprons for separating the aprons one from the other.

51. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing to contain fluid, aprons for conveying an article passing through the receptacle and discharging the article through the opening of the casing, means for moving the aprons and spring pressed means contacting with the aprons for preventing the aprons conveying the article beyond the discharge opening.

52. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing to contain fluid, aprons for conveying an article through the receptacle and discharging the article through the opening of the casing, means for moving the aprons in the receptacle and means yieldingly contacting with the aprons for removing an article from the aprons and preventing the aprons conveying the article beyond the opening.

53. In a photographic and developing apparatus, a receptacle for fluid, flexible aprons movable in the receptacle, means for moving the aprons in unison and in parallel relation in the receptacle, and means for retaining the aprons separated at the upper part of the receptacle one from the other at intervals intermediate the length of the receptacle.

54. In a developing apparatus, a casing having a discharge opening, a receptacle

within the casing to contain fluid, aprons for conveying an article through the receptacle and discharging the article through the opening of the casing, and swinging means normally held in contact with the aprons for removing an article from the aprons and preventing the aprons conveying the article beyond the opening.

55. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing to contain fluid, aprons for conveying an article passing through the receptacle and discharging the article through the opening of the casing, and wings contacting with the aprons for removing an article from the aprons and preventing the aprons from conveying the article beyond the opening.

56. In a developing apparatus, a casing having a discharge opening, a receptacle within the casing to contain fluid, aprons for conveying an article passing through the receptacle and discharging the article through the opening of the casing, and wings contacting with the aprons for removing an article from the aprons and preventing the aprons from conveying the article beyond the opening, said wings having flexible strips in their edges adjacent the aprons.

57. In a photographic and developing apparatus, a receptacle, aprons for conveying an article passing through the said receptacle, and yieldable means for removing an article from the aprons and preventing the aprons carrying the article beyond a predetermined point.

58. In a photographic and developing apparatus, a receptacle, aprons for conveying an article passing through said receptacle, means for preventing any undue lateral movement of the aprons, and mechanism carried by said means for removing an article from the aprons and preventing the aprons conveying the article beyond a predetermined point.

59. In a photographic and developing apparatus, a receptacle, aprons for conveying an article through said receptacle, plates carried by the receptacle for preventing any undue lateral movement of the aprons, and means carried by the plates for removing an article from the aprons and preventing the aprons conveying the article beyond a predetermined point.

60. In a photographic and developing apparatus, a receptacle, aprons for conveying an article through said receptacle, plates carried by the receptacle for preventing any undue lateral movement of the aprons, and means carried intermediate the plates for removing an article from the apron and preventing the aprons conveying an article beyond a predetermined point.

61. In a photographic and developing apparatus, a receptacle, aprons for conveying an article through said receptacle, plates carried by the receptacle for preventing any undue lateral movement of the aprons, shafts mounted intermediate the plates, and wings carried by the shafts for contacting with the aprons for removing an article from the apron and preventing the aprons carrying the article beyond a predetermined point.

62. In a photographic and developing apparatus, a receptacle, aprons for conveying an article through said receptacle, plates carried by the receptacle for preventing any undue movement of the aprons, shafts mounted intermediate the plates, wings carried by the shafts for contacting with the aprons for removing an article from the apron and preventing the aprons carrying the article beyond a predetermined point, and springs for rotating the shafts and holding the wings in contact with the aprons.

63. In a photographic and developing apparatus, a receptacle, aprons for conveying an article through said receptacle, plates carried by the receptacle for preventing any undue lateral movement of the article with relation to the aprons, shafts mounted intermediate the plates, wings carried by the shafts for contacting with the aprons for removing an article from the apron and preventing the aprons carrying the article beyond a predetermined point, springs for rotating the shafts and holding the wings in contact with the aprons, and extensions on the springs bearing against the plates for creating the desired movement of the shafts.

64. In a photographic and developing apparatus, a receptacle, aprons for conveying an article through said receptacle, plates carried by the receptacle for preventing any undue lateral movement of the article with relation to the aprons, shafts mounted intermediate the plates, wings carried by the shafts for contacting with the aprons for removing an article from the aprons and preventing the aprons carrying the article beyond a predetermined point, springs for rotating the shafts and holding the wings in contact with the aprons, extensions on the springs, and lugs on one of the plates against which the extensions of the springs bear to create the desired rotation of the shaft.

65. In a developing apparatus, a casing, a receptacle within the casing, aprons for conveying articles through said receptacles, drums for operating the aprons, means for rotating the drums, and means interposed between the drum operating means and aprons for preventing lateral movement of the aprons.

66. In a photographic and developing apparatus, a casing, a receptacle therein for containing fluid, rollers carried by the re-

ceptacle, aprons passing through the receptacle and around the rollers, said rollers being positioned to separate the aprons at intervals, and means for positively driving the rollers.

67. In a developing apparatus, a casing, a receptacle therein for containing fluid, rollers carried by the receptacle, aprons passing through the receptacle and around the rollers, said rollers being positioned to separate the aprons at intervals, rollers carried by the receptacle for severing the film at intervals, additional rollers positioned beneath the severing rollers for drawing the film therethrough, and means for positively operating the spacing rollers of the aprons, the severing rollers and the drawing rollers in unison.

68. In combination, a casing, a receptacle therein to contain fluid, aprons passing therethrough, rollers carried by the receptacle to separate the aprons at intervals, and means whereby said separating rollers are positively driven in unison.

69. In a photographic and developing apparatus, a casing, a receptacle therein for containing fluid, said receptacle being divided into compartments, certain of said compartments being separated from the remainder, an apron passing through all of the compartments, bands traveling with the apron in the first of the compartments, a second apron traveling with the first named apron through the remainder of the compartments, bands traveling with the aprons in the last named compartments, and a roller carried by the casing for separating the bands from one of the aprons.

70. In a photographic and developing apparatus, a receptacle for fluid, said receptacle being divided transversely into compartments, certain of said compartments being separated from the remainder and having a space therebetween, and a conveyer passing through said compartments, a portion of said conveyer passing through the space between the compartments.

71. In a photographic and developing apparatus, a receptacle for containing fluid, said receptacle being divided into compartments, certain of said compartments being separated from the remainder and having a space therebetween, and conveying means passing through the compartments, part of said conveying means passing through the space between the compartments.

72. A developing apparatus adapted to containing fluid, means for carrying film through the apparatus and devices contacting with the surface of the film at points between its edges and acting in conjunction with the carrying means for holding the film to the carrying means.

73. In a machine for conveying films through liquid, a member for supporting substantially the whole of the film and supporting members contacting the central and intermediate portions of the film for retaining the film on the first mentioned member whereby the coated surface of the film may be reached by the liquid.

74. In a machine for conveying film, a conveyer and separated devices substantially parallel with the said conveyer for supporting the film and holding it in position on the conveyer, means for operating the conveyer and separated devices, and a fluid receptacle into which the conveyer and separated devices travel.

75. In a machine for conveying film, a traveling member for supporting substantially the entire surface of the film, separated devices substantially parallel with the member for carrying the film and coacting therewith for engaging the portion of the film intermediate its width, means for operating the member for carrying the film and the separated devices, and a fluid receptacle in which travel the member for carrying the film and the separated devices.

76. In a machine for conveying film, said machine having a tank, a traveling member for supporting substantially the whole surface of the film, separated devices coacting with the traveling member for supporting the central or intermediate portions of the film, means for operating the traveling member and the separated devices, and members in the tank around which the traveling member and separated devices travel.

77. In a machine for conveying film, a traveling member supporting substantially the whole of the film, separated devices contacting the film on the traveling member for holding it in engagement therewith, means for operating the traveling member and the separated devices, and a receptacle for containing liquid into which the member for carrying the film and the separated devices extend.

78. In a machine for conveying film through liquid, a traveling member for carrying film, flexible devices moving substantially parallel with the traveling member and contacting the film to retain it on the traveling member, a receptacle for containing liquid, means for guiding the film carrying means through the said liquid in the receptacle whereby the coated surface of the film is subjected to the action of the fluid substantially throughout its coated surface.

79. A machine for developing photographic film having suitable solution containers, a conveyer for carrying the film therethrough, devices traveling with the film, certain of said devices being separated and contacting with the film for supporting the intermediate parts thereof, and means for moving the aprons and parts associated therewith.

80. In a photographic and developing apparatus, a casing, a receptacle therein, said receptacle being divided into compartments, an apron passing through all of the compartments, flexible means traveling with the apron through the first of the compartments, a second apron traveling with the first named apron through the remainder of the compartments, and means for moving the aprons and parts associated therewith.

81. In a photographic and developing apparatus, a casing, a receptacle therein, said receptacle being divided into compartments, an apron passing through all of the compartments, devices traveling with the apron through one of the compartments, a second apron traveling with the first named apron through the remainder of the compartments, and means for moving the aprons and parts associated therewith.

82. In a photographic and developing apparatus, a casing, a receptacle therein, said receptacle being divided into compartments, an apron passing through all of the compartments, holding means traveling with the apron through certain of the compartments, a second apron traveling with the first named apron through the remainder of the compartments, and means for moving the aprons and parts associated therewith.

83. In a photographic and developing apparatus, a receptacle, flexible aprons movable in the receptacle contacting one with the other and means for separating the aprons at intervals one from the other within the receptacle.

84. In a photographic and developing apparatus, a receptacle, aprons movable through the receptacle, rollers for operating the aprons, shafts for the rollers, means for rotating the shafts, an arm mounted on one of the shafts of the rollers, and means contacting with the arm to obstruct the rotation of the rollers.

85. In a photographic and developing apparatus, a receptacle, aprons movable through the receptacle, rollers for operating the aprons, shafts for the rollers, means for rotating the rollers, an arm loosely mounted on the shaft of one of the rollers adjacent thereto and movable therewith, means contacting with the arm to obstruct the rotation of the rollers, and a spring for imparting movement to the arm.

86. In a photographic and developing apparatus, a receptacle, aprons movable through the receptacle, rollers operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, means contacting with the arm to obstruct the rotation of the roller, and a spring contacting with the arm for imparting movement thereto.

87. In combination, a casing, a receptacle therein, aprons movable through the receptacle, driving rollers for operating the aprons, means for rotating the rollers, and means acting in conjunction with one of the rollers for obstructing the rotation thereof, said means extending to the exterior of the casing.

88. In combination, a casing, a receptacle, aprons movable through the receptacle, driving rollers for operating the aprons, means for rotating the rollers, and a lever acting in conjunction with one of the rollers to obstruct the rotation thereof, said lever extending to the exterior of the casing.

89. In a photographic and developing apparatus, a receptacle, aprons movable through the receptacle, rollers operating the aprons, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers, and movable means contacting with the arm to obstruct the rotation of the rollers, said arm becoming free upon the movement of the movable means.

90. In a photographic and developing apparatus, a receptacle, aprons movable through the receptacle, driving rollers for operating the aprons, means for rotating the rollers, an arm mounted adjacent one of the rollers, movable means contacting with the arm to obstruct the rotation of the rollers, and means for freeing the arm from the obstructing means upon movement thereof.

91. In a photographic and developing apparatus, a receptacle for containing liquid, a carrier movable therethrough, means for feeding film to the carrier, means for interrupting the movement of the carrier when the said carrier has moved from the film feeding means a distance to wholly immerse a film in the liquid, and means for moving the carrier.

92. In a photographic and developing apparatus, a casing having a discharge opening, a receptacle within the casing, a carrier for conveying articles passing through said receptacle and discharging the articles through said opening of the casing, and means adjacent the carrier independent thereof where it approaches the discharge opening of the casing for preventing undue lateral movement of the carrier.

93. In a photographic and developing apparatus, a casing, a receptacle within the casing, a carrier for conveying articles passing through said receptacle, rollers for operating the carrier, and plates engaging the rollers to hold said carrier against undue lateral movement.

94. In a photographic and developing apparatus, a casing having a discharge opening, a receptacle within the casing, a carrier for conveying an article through the receptacle and discharging the article through the opening of the casing, and means movable with relation to the carrier normally held in contact with the carrier for prevent-

ing the carrier conveying the articles beyond the opening.

95. In a photographic and developing apparatus, a receptacle, a conveyer for carrying an article passing through the receptacle, and means movable independent of the apron normally contacting with the carrier for preventing the carrier conveying the article beyond a predetermined point.

96. In a photographic and developing apparatus, a receptacle, a carrier for conveying an article through said receptacle, plates carried by the receptacle for preventing any undue movement of the carrier, a shaft mounted intermediate the plates, and means carried by the shaft for contacting with the carrier for preventing the carrier carrying the article beyond a predetermined point.

97. In a photographic and developing apparatus, a receptacle, a conveyer for carrying an article through said receptacle, plates carried by the receptacle, a shaft mounted intermediate the plates, and wings carried by the shaft for contacting with the aprons.

98. In a photographic and developing apparatus, a receptacle, a carrier for conveying an article through said receptacle, plates carried by the receptacle, a shaft carried by the plates, and means on the shafts for contacting with the carrier for preventing the carrier conveying the article beyond a predetermined point.

99. In a photographic and developing apparatus, a receptacle, a carrier to convey an article through said receptacle, means for preventing any undue movement of the carrier, a shaft carried by said means, and means on the shaft for contacting with the carrier for preventing the carrier conveying the article beyond a predetermined point.

100. In a photographic and developing apparatus, a receptacle, a carrier for conveying an article through said receptacle, means for preventing any abnormal movement of the carrier, a shaft carried by said means, means on the shaft for contacting with the carrier for preventing the carrier conveying the article beyond a predetermined point, and means for rotating the shaft.

101. In a photographic and developing apparatus, a receptacle, a carrier for conveying an article through said receptacle, means for preventing any abnormal movement of the carrier, shafts carried by said means, wings carried by the shafts for contacting with the carrier for preventing the carrier conveying the article beyond a predetermined point, and means for rotating the shafts to hold the means in contact with the carrier.

102. In a photographic and developing apparatus, a receptacle, a carrier for conveying the article through said receptacle, means for preventing any abnormal movement of the carrier, a shaft carried by said means, means on the shaft for contacting with the carrier to prevent said carrier conveying an article beyond a predetermined point, and spring means for rotating the shaft.

103. In a photographic and developing apparatus, a receptacle, a carrier for conveying an article through said receptacle, means for preventing any undue movement of the carrier, shafts carried by said means, means carried by the shaft for contacting with the carrier to prevent said carrier conveying the article beyond a predetermined point, springs for rotating the shafts, and extensions on the springs for creating the desired movement of the shafts.

104. In a photographic and developing apparatus, a receptacle, rollers therein, a carrier passing through the receptacle and around said rollers for conveying an article through the receptacle, means for preventing any undue movement of the carrier, said means being engaged by certain of the rollers.

105. In a photographic and developing apparatus, a receptacle, rollers therein, a conveyer passing through the receptacle and around the said rollers for conveying an article through the receptacle, plates for preventing any undue movement of the carrier, said plates being engaged by certain of the rollers.

106. In a photographic and developing apparatus, a receptacle, rollers therein, a carrier passing through the receptacle and around the rollers for carrying an article through the receptacle, plates for preventing any undue movement of the carrier, and extensions on the plates, said extensions being engaged by certain of the rollers.

107. In a photographic and developing apparatus, a casing, a receptacle therein, rollers carried by the receptacle, a carrier passing through the receptacle and around the rollers, rollers for drawing the film, additional rollers for drawing the film, and means for positively operating all the rollers in unison.

108. A developing apparatus having a receptacle, means for carrying film through said receptacle, and separated devices for frictionally holding the film in engagement with the means for carrying the film.

109. In a photographic and developing apparatus, a receptacle, a carrier movable through the receptacle, rollers for operating the carrier, means for rotating the rollers, and means movable laterally with relation to the receptacle for obstructing the rotation of the rollers.

110. In a photographic and developing apparatus, aprons traveling in unison, said aprons moving parallel a portion of their

travel, and means for separating the aprons during their parallel travel.

111. In a photographic and developing apparatus, a receptacle for fluid, aprons movable in the receptacle, means for supporting the aprons, and means for separating the aprons one from the other independent of the apron supporting means.

112. In a photographic and developing apparatus, a receptacle, a carrier movable through the receptacle, rollers for operating the carrier, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, means contacting with the arm to obstruct the rotation of the roller, means for imparting a movement to the arm independently of the rotation of the roller, and means for limiting the independent movement of the arm.

113. In a photographic and developing apparatus, a receptacle, a carrier movable through the receptacle, rollers for operating the carrier, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, means contacting with the arm to obstruct the rotation of the roller, means for imparting a movement to the arm independently of the rotation of the roller, and means for limiting the independent movement of the arm.

114. In a photographic and developing apparatus, a receptacle to contain fluid, a carrier movable through the receptacle, rollers for operating the carrier, means for rotating the rollers, an arm loosely mounted adjacent one of the rollers and movable therewith, means contacting with the arm to obstruct the rotation of the roller, means for imparting a movement to the arm, and means for limiting said movement of the arm.

In testimony whereof, I affix my signature in the presence of two witnesses, this 7th day of April, A. D. 1906.

GEORGE C. BEIDLER.

Witnesses:
LOTTIE E. BARKLEY,
FRANK S. APPLEMAN.