

May 19, 1953

A. J. BACHELDER ET AL
PHOTOGRAPHIC PROCESSING APPARATUS

2,638,828

Filed June 16, 1951

3 Sheets-Sheet 1

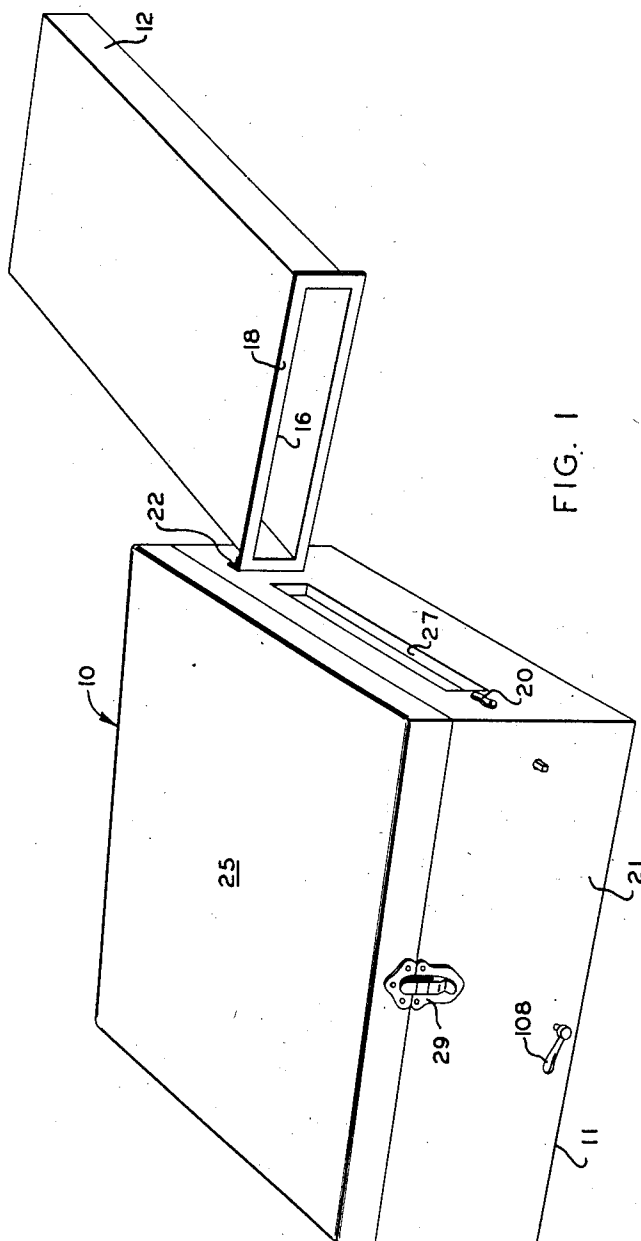


FIG. 1

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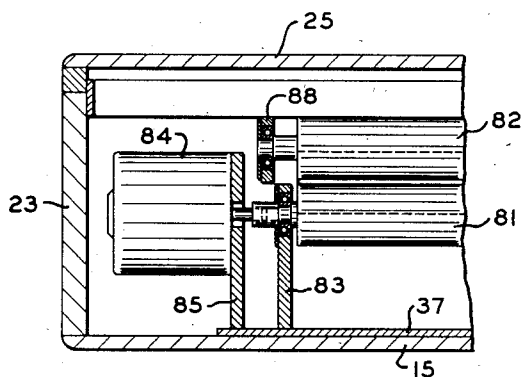


FIG. 4

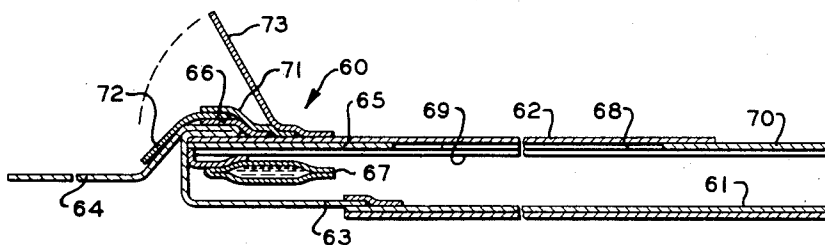


FIG. 5

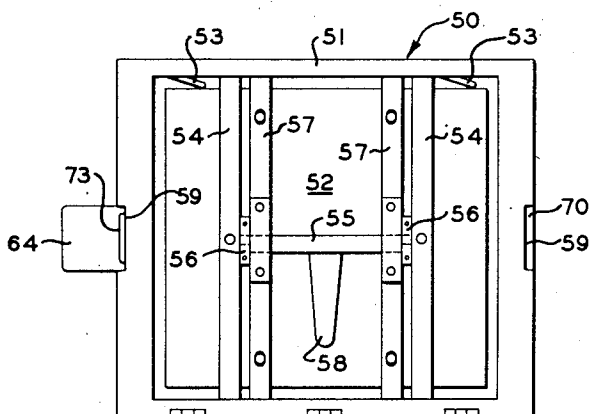


FIG. 6

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UNITED STATES PATENT OFFICE

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PHOTOGRAPHIC PROCESSING APPARATUS

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Application June 16, 1951, Serial No. 231,996

25 Claims. (Cl. 95—89)

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This invention relates to photographic processing apparatus and more particularly has reference to photographic apparatus for use in processing a self-developing type of photographic film assembly.

Objects of the invention are to provide apparatus for processing a self-developing photographic film assembly in the presence of light actinic to said film assembly and having a lighttight receptacle within which there is mounted stress-applying means for applying pressure to the opposite sides of the film assembly and for drawing the film assembly therethrough for discharge within a part of the receptacle, means for engaging the stress-applying means with the film assembly and for causing the stress-applying means to draw the film assembly therethrough, means for controlling the initiation of the film assembly withdrawing action of the stress-applying means, means for arresting the film assembly withdrawing action of said stress-applying means, and means for predeterminedly separating said stress-applying means.

Further objects of the invention are to provide apparatus for processing a self-developing photographic film assembly having a lighttight main compartment wherein there are located means of the character set forth for carrying out the processing of a film assembly positioned within the main compartment and wherein said apparatus is provided with an auxiliary lighttight compartment communicating with the main compartment and within which said film assembly is deposited after passage through said stress-applying means; to provide apparatus wherein the main compartment is provided with a platform for supporting said film assembly as well as a holder for said assembly and wherein said platform is provided with means for aligning said holder with said pressure-applying means and for maintaining said holder in said alignment; to provide processing apparatus having means for gaining access to said main and auxiliary compartments to permit a film assembly to be bodily placed within and to be removed from the apparatus, said means being engageable in lighttight contact with said apparatus; and to provide film-processing apparatus possessing the features set forth incorporated in a design providing a portable and substantially lighttight receptacle.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the apparatus possessing the construction, combination

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of elements and arrangement of parts which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings wherein:

Figure 1 is a perspective view of the processing apparatus of this invention showing the housing or receptacle of said apparatus;

Fig. 2 is a plan view of the apparatus of Fig. 1 with the cover of the receptacle removed;

Fig. 3 is a longitudinal sectional elevation of the apparatus of Fig. 2 with parts thereof removed and shows a film holder with a film assembly contained therein as mounted within the apparatus;

Fig. 4 is a broken-away, transverse elevation of the apparatus of Fig. 2 with parts in section and with parts removed;

Fig. 5 is a schematic sectional view taken longitudinally of a film assembly with which the apparatus of Figs. 1 through 4 is usable; and

Fig. 6 is a schematic plan view of a film holder or cassette used with the apparatus of Figs. 1 through 4 and diagrammatically illustrates a film assembly as mounted within the holder.

The film processing apparatus of this invention makes use of a substantially lighttight box-like receptacle or structure containing mechanism for processing a photographic film assembly removably mounted within a film holder or cassette, which is supportable within said receptacle. This receptacle, generally indicated by the reference numeral 10, is shown in perspective in Fig. 1 and comprises a main compartment 11 and an auxiliary compartment 12. The main compartment is provided with a bottom or base 15 (see Fig. 3) and wall members 17, 19, 21 and 23. As shown particularly well in Figs. 1 and 2, the main compartment 11 is provided with a cover member 25 hinged to the wall member 23 of said main compartment. Cover member 25 is adapted to provide a lighttight closure for the receptacle 10 and is securable in closed position by conventional latch means 29 carried on the cover 25 and the wall 21. Main compartment 11 may be rectangular or may be substantially square as illustrated. Similar shapes are employable for the auxiliary compartment 12. The receptacle 10 is formed of suitable construction material opaque to light which is actinic to the film assembly to be processed. Many such ma-

terials are known and include metal, wood, organic plastics and combinations thereof.

Side wall 17 of the main compartment 11 is provided with an aperture 27 therein which is adapted to communicate with the auxiliary compartment 12. Auxiliary compartment 12 is provided with top, bottom and side walls and is closed at one end as by an end wall 14. At its opposite end, the auxiliary compartment 12 is open and has an aperture 16 with a flange 18 formed around the mouth of the aperture which is adapted to be seated and secured in lighttight contact with the outer face of the side wall 17 of the main compartment so that said aperture 16 is in cooperative alignment with the aperture 27 in said side wall 17. Thus, a continuation of the main compartment 11 is extendable outwardly from the outer surface of the side wall 17 by the auxiliary compartment 12 (see Fig. 2).

Auxiliary compartment 12 may be permanently fixed to the main compartment 11 or may be detachable therefrom. The mounting means for the auxiliary compartment are preferably made detachable whereby the auxiliary compartment may be removed from connection with the main compartment for storage, as for example within the main compartment.

In the embodiment illustrated in Fig. 1, auxiliary compartment 12 is pivotally connected to the main compartment 11 for movement toward and away from said main compartment. By this construction, the auxiliary compartment 12 is hinged at one corner thereof to the end wall 17 of the main compartment as by any conventional and detachable hinge means, such as the means illustrated at 22 provided with a removable hinge pin. A conventional latch member 26 pivotally supported on the side wall 17 of the main compartment is engageable with the flange 18 of the auxiliary compartment for fastening said auxiliary compartment in lighttight engagement with the main compartment.

Fig. 1 illustrates the auxiliary compartment 12 in open or swung-away relation to the main compartment 11, while Fig. 2 discloses the auxiliary compartment as secured in lighttight contact with the main compartment. As will presently appear, in the embodiment of the invention forming the subject of illustration, hinging of the auxiliary compartment 12 is designed to facilitate removal of a processed film assembly. However, the receptacle 10 may be so constructed and arranged that a processed film assembly may be removed or extracted from the auxiliary compartment from within the main compartment and without the necessity of opening the auxiliary compartment. Under such conditions, the auxiliary compartment may be removably secured to the main compartment by threaded fastenings or other conventional securing means engaged with the flange 18 on the auxiliary compartment and with the wall 17 of the main compartment. In this embodiment, the auxiliary compartment is maintained in lighttight engagement with the main compartment at all times when the apparatus is in use and is only detached or opened for the purpose of storing it when the apparatus is moved.

As previously pointed out, the mechanism for processing the film assembly is housed within the main compartment 11 of the processing receptacle. Important components of this mechanism comprise a platform 30 supported above the bottom or base 15 of the main compartment and extending from adjacent wall 19 toward wall

17 and further comprise stress-applying means 40 in the form of a pair of wringer or pressure-applying rolls supported above the bottom 15 of the main compartment at a location between the end of said platform and said wall 17 of the main compartment.

The platform 30 is adapted to support a film holder or cassette 50, such as that shown in Fig. 6, which in turn is adapted to have a photographic film assembly 60 removably mounted within the holder 50. The holder 50 is provided with an opening in at least one end thereof through which the photographic film assembly 60 is withdrawable, and the film assembly is provided with a leader portion adapted to extend through said opening and engageable with said stress-applying means. The film holder 50 is supported on platform 30 in operative alignment with the stress-applying means 40 which are in turn operatively aligned with the aperture 27 in the wall member 17 of the main compartment.

In processing a film assembly mounted within a film holder supported upon the platform 30, the stress-applying means 40 are adapted to be brought into pressure contact with the opposite sides of said film assembly, including the leader portion thereof, and are caused to draw the film assembly therethrough and discharge it into the auxiliary compartment 12.

Before describing the processing mechanism in detail, it is desirable to give some consideration to the nature of the article to be processed as well as the preferred manner for holding said article prior to processing. The article to be processed, namely, a photographic film assembly 60, is illustrated in Fig. 5, while a holder 50 therefor is shown in Fig. 6. A full disclosure of photographic film assemblies of the character illustrated in Fig. 5 is contained in the copending application of Albert J. Bachelder et al., Serial No. 232,284, filed June 19, 1951, for Photographic Film Assembly and a full disclosure of a film holder for such assemblies is disclosed in the copending application of Albert J. Bachelder et al., Serial No. 227,238, filed May 19, 1951 for X-ray Cassette, and reference to the details thereof is made herewith. A brief description of the photographic film assembly and the film holder will be helpful in obtaining an understanding of the present invention.

With particular reference to Fig. 5, there is shown a photographic film assembly 60 of the self-developing type which makes use of two superposable liquid-confining layers 61 and 62 adapted to be connected together at one end by suitable flexible leader means 63 which hinge said layers together. Leader means 63 is secured at one end to the end of the layer 61 as by an adhesive strip or tape and the leader means is also secured at a position intermediate its ends to the outer surface of liquid-confining layer 62 as by an adhesive strip or tape 66. The portion of the leader 63 between the connection 66 and the free end of the leader provides an extension 64 which is used in processing the film assembly and which may be straightened or pulled out as shown in Fig. 5. When not pulled out, leader extension 64 is folded upon itself and into contact with itself and the hinge part of the leader. The portion of the leader means 63 connected to the layers 61 and 62 has a width substantially equal to that of said layers, while the width of the leader extension portion 64 is considerably less. Preferably, the leader extension 64 has a width slightly less than the cutaway portions 59

formed, for a purpose which will presently appear, in the end members of the frames of the holder 50. Conventional leader stock may be used to form leader 63.

The liquid-confining layer 61 comprises a conventional photographic film support having a silver halide emulsion coated on the inner surface thereof, i. e., the surface adapted to face liquid-confining layer 62. In effect, layer 61 constitutes a photosensitive element. The liquid-confining layer 62, in the embodiment shown, is adapted to receive a transfer image and constitutes a print-receiving element. A suitable material for layer 62 comprises baryta paper. Transparent material suitable for use with layer 62 comprises such organic plastics as regenerated cellulose; polyhydroxy alkanes such as polyvinyl alcohol; sodium alginate; and cellulose ethers, such as methyl-cellulose or other cellulose derivatives such as carboxymethyl cellulose or hydroxyethyl cellulose. For purposes of defining on the inner surface of the layer 62 an image area which overlies the picture area on the layer 61, use is made of a mask 65 which is strippably secured to the inner surface of the liquid-confining layer 62 and is provided with an aperture 68 therein adapted to define said image area. A suitable material for mask 65 is a thin paper, such as condenser paper.

Also associated with the liquid-confining layers 61 and 62 is a rupturable container 67 adapted to hold a liquid processing composition. Container 67 is positioned adjacent the leader end of said layers 61 and 62 and is hingedly secured to the leader as by means of the adhesive strip or tape shown as connected to said container and the leader 63. Preferably, for the purpose of carrying out a photographic transfer process, container 67 holds a solution of a photographic developer and a silver halide fixer and preferably includes a thickening agent in said solution.

Container 67 is formed of a substantially liquid- and oxygen-impervious material and has marginal portions of the walls thereof releasably sealed together whereby pressure applied to opposite sides of the container will force the liquid in the container to rupture the seal along the trailing edge of the container and discharge the liquid content for spreading between the liquid-confining layers 61 and 62. In length, container 67 is sufficiently long to extend almost fully across the liquid-confining layers 61 and 62.

For processing purposes, the film assembly 60 is adapted to be drawn between a pair of pressure-applying members with the hinge and container end of the assembly in the lead whereby said end is the leading end of the assembly. These pressure-applying members are adapted to effect the rupture of the container and to spread the released liquid between the layers 61 and 62 in a thin film. The spread liquid develops a latent image in the photosensitive layer 61 and forms with the unexposed silver halide a solution of silver complex which is transferred by imbibition to the image-receiving layer 62 and the silver of said complex is there precipitated to provide a reverse image of the developed latent image. Following development, layers 61 and 62 are separated as by peeling them apart and then separating one layer from connection with the other.

To assist in controlling the spreading of the liquid content of the container 67, use is made of spacer strips 69 secured to the outer surface of the mask 65 adjacent each longitudinal edge thereof. As the container 67 holds more than

sufficient liquid to process said film assembly, it is desirable to trap or collect excess liquid whereby to prevent manual contact therewith when handling the processed film assembly, as well as to prevent fouling of the stress-applying means for processing said assembly.

If the processing pressure applied to the film assembly is released or relieved before the film assembly has been completely drawn through the pressure-applying means, the liquid composition will no longer be spread in a thin film but will begin to collect. The film assembly 60 is designed to effect trapping of the excess processing liquid by separation of the pressure-applying means near the trailing end of the film assembly. In this connection, the film assembly 60 extends the mask 65 beyond the trailing end of the liquid-confining layer 62 to provide mask extension 70 capable of functioning as a trap for collecting excess liquid composition. Thus, the film assembly 60 is specially designed for use with apparatus such as that disclosed in Figs. 1 through 4 wherein means are provided for separating the pressure-applying members at a position between the trailing end of the image-receiving layer 62 and the trailing end of the mask extension 70.

The film assembly 60 is provided with a handling tab 73 which is fixed to the outer surface of the liquid-confining layer 62 near the leading end of said layer, as by being provided with a suitable adhesive sealable to the layer by pressure and/or heat. Handling tab 73 may comprise appropriate film leader stock and is usable in handling the film assembly, for example when loading the film assembly into a holder and when preparing the film assembly for exposure and processing.

Film assembly 60, as described, is unprotected from exposure by actinic light. It is desirable to provide means which permit the assembly to be handled in daylight or under other illumination. For this purpose, a lighttight envelope, formed of substantially opaque material such as film leader stock, is adapted to be releasably engaged around the liquid-confining or photosensitive layer 61 and to be provided with an extension flap which is wrapped around the leading edge of the assembly and is secured as by a tape or adhesive strip 71 to the outer surface of the liquid-confining layer 62. The extension portion 64 of the leader 63 is adapted to be fitted within the folded-over envelope flap secured to the liquid-confining layer 62.

Fig. 5 shows the film assembly after the removal of the envelope and as noted with the leader 63 in straightened condition. Removal of the envelope is effected by use of a tear string which is employed to sever the envelope flap to permit the envelope to be pulled off the film assembly from the trailing end thereof. When the envelope is severed, a portion of the envelope extension flap remains attached to the liquid-confining layer 62 and said envelope portion is indicated by the reference numeral 72.

Film assembly 60, for exposure purposes, is preferably enclosed within a holder which is characterized by being penetrable by X-rays, gamma rays and other types of nuclear radiation while being substantially opaque to visible and near visible light and which may be constructed with a slide member operable to permit film exposure by actinic light. For optimum utility with a film assembly 60 which includes a light protecting envelope around the photosensitive portion thereof, the film holder should be constructed so

that both the film assembly 60 and said envelope may be removed therefrom without opening the film holder for access of actinic light. In such a case, the film holder is provided at opposite ends thereof with an opening or passageway which is closed by flexible light-seal means whereby an envelope associated with the film assembly may be drawn or pulled out of the holder through one end thereof and whereby the film assembly may be similarly withdrawn through the opposite end of the holder. Film holder 50 possesses these features and characteristics.

For this purpose, the holder 50 comprises two frame members hinged together by conventional hinge means of the character shown and superposable on each other. Fig. 6 shows a frame 51 which provides a back frame for the holder 50. These frames, when in contact, are securable together by spring-loaded latch mechanism having operating levers 53. Said frame members, when superposed and latched together, are adapted to provide a holding compartment for a film assembly and for this purpose the aperture in each said frame is closed by a plate member. Fig. 5 shows the back plate 52 for closing the back frame 51.

Each frame member is adapted to be closed by a plate. When the holder is designed for X-ray work, the plate in the front plate member is permanently fixed therein and comprises a suitable element of a phenolic material. Alternatively, the front plate may be in the nature of a slide whereby the aperture in the front frame may be opened for carrying out an exposure by actinic light and then closed following exposure. The term "front," as employed herein in connection with the holder, is with reference to the side from which an exposure is made and the term "back" is with reference to the opposite side of said holder.

The back plate 52, which closes the aperture of the back frame member 51, is mounted for movement within the frame member 51 toward and away from the front plate and is urged toward the front plate by means of a pair of spring members 54 fixed to the back plate adjacent opposite ends thereof and engaged with recesses in the side members of the frame 51. It is desirable to urge the back plate member 52 toward the front plate for the purpose of maintaining the liquid-confining layers 61 and 62 under pressure during exposure of the film assembly, especially for X-ray work wherein an intensifying screen (not shown) is adapted to be mounted within the film holder 50 at a position where it is located between the liquid-confining layers 61 and 62 of a film assembly carried by the holder. Plate 52 exerts pressure for maintaining the layers 61 and 62 in intimate contact with the intensifying screen.

Lever mechanism for overcoming the spring-loading of the back plate and for retracting it to its furthestmost position from the front plate is associated with the back plate 52. This lever mechanism comprises a cam bar 55 provided at opposite ends with stub shafts which are eccentric with respect to the bar and which are rotatably supported in bearings 56 fixed to the outer surface of the back plate. Cam bar 55 is provided with cam surfaces adapted to operatively contact a pair of lever members 57 which are individually located at opposite ends of the cam bar and which extend transversely of the plate element 52 and over the cam bar and are fixed to the plate by suitable rivets. An operating handle 58 is fixed to the cam bar 55 centrally thereof.

Lever members 57 have their free ends engaged within recesses (not shown) in the side members of the back frame and each lever member comprises two relatively rigid or stiff metal plates fixed to the back plate and a resilient central section such as a strip of flat spring material which is joined to the end sections and which extends over the cam bar.

The just described lever mechanism provides means for overcoming the force created by the springs 54 whereby to move the back plate 52 in its frame. Pivotal movement of the handle 58 through 90°, and to an upright position with respect to the back plate, is adapted to cause the lever members to be lifted and consequently the back plate to which they are connected will be retracted to its most rearward position.

Preparation of the film holder 50 and the film assembly 60 for use is carried out by preferably placing the film holder upon a support surface, such as a table top, with the back frame 51 uppermost, following which the operating handle 58 is moved to raised position, the latch members 53 are released and the back frame 51 is pivoted about its hinges to open the holder. The hinge means 52 and handle 53 are so constructed that the handle 58 may be utilized as a prop or brace for holding the frame 51 in open relation by employment of the free end of said handle as a foot adapted to contact the support surface on which the holder is seated.

The photographic film assembly 60 is then placed within the open cassette so that the photosensitive or liquid-confining layer 61 is down or seated against the front plate of the holder. If an intensifying screen is to be employed, the liquid-confining layer 62 is pivoted about its hinged end and the screen is placed within the holder adjacent the liquid-confining layer 61, after which the liquid-confining layer 62 is returned to its normal position where it will be in contact with the intensifying screen. The film holder is then closed and locked.

Assuming that the film assembly 60, when loaded into the film holder, is provided with a light-tight envelope, a portion of said envelope will extend from one end of the film holder, i. e., the right end of the film holder as shown in Fig. 6, while the severing cord for the envelope will extend from the other end of the holder. With the handle 58 in its upright position, the film assembly and the envelope may be withdrawn from the film holder. The end of the envelope extending from the cassette is held while the severing cord is pulled, after which the film assembly is held at its front end as by pressure on the handling tab 73 which extends within the cutout portion 59 at each end of each frame of the holder, while the portion of the envelope extending from the other end of the holder is pulled so as to withdraw the envelope.

Following this procedure, the plate operating handle 58 is depressed whereby to permit the plate 52 to exert pressure upon the film assembly mounted within the holder. The film is then ready for exposure. After exposure, the operating handle 58 is raised so as to retract the plate 52 and the leader extension 64 is pulled outwardly to extend from the film holder, this being carried out without substantially disturbing the position of the film within the holder. The film assembly and holder are now ready for processing, which is effected through the processing mechanism mounted within the receptacle 10.

Once the film assembly 60 is mounted within

the film holder 50, it is protected from actinic light whereby the film holder may be handled in illuminated surroundings. It will be apparent that film processing will be facilitated if it can be carried out under illuminated conditions. This is made possible by the use of the lighttight box or receptacle 10. With specific reference to the processing mechanism within the main compartment 11, such mechanism as noted comprises the platform 30 and stress-applying means 40. Platform 30 is adapted to be elevated above the bottom 15 of the main compartment and may be supported at one end as shown by upright posts 31 and at the other end may be secured to a pair of spaced-apart plate members 83 which extend upwardly from the bottom of the main compartment and in addition provide a support for the stress-applying means 40.

Posts 31 and plate members 83 are mounted upon a base plate 37 which may be removably secured to the bottom 15 and/or wall members 21 and 23 of the main compartment. This last-mentioned expedient permits the processing mechanism to be removed from the main compartment 11 for adjustment and repair. Alternatively, the platform 30 and support for the stress-applying means may be formed as a one-piece casting which may be provided with legs detachably securable within the compartment 11 so that the platform and the stress-applying means may be removed from the main compartment as a unit.

Details of the platform are particularly well shown in Figs. 2 and 3. The platform is both wider and longer than the film holder 50 and has a flat upper surface upon which the film holder is seated. An individual enlarged aperture or cutaway portion 33 is formed in each side of the platform near the end thereof furthest removed from the stress-applying means 40. These cutaway portions 33 may have any desired edge contour and are intended to facilitate placement of the loaded cassette upon the platform. Thus, the film holder 50, when manually grasped on opposite sides, may be readily lowered and seated on the platform 30.

Additionally, the platform 30 is provided with guide members 34 in the form of rails or strips which are located along each longitudinal edge of the film holder. Guide members 34 are employed for the purpose of aligning the end of the film holder 50 between the ends of the stress-applying means 40. As may be noted, a pair of guide members are positioned on each side of the platform and extend from opposite edges of the cutaway portions 33. A stop member 35 is associated with each side plate 83 adjacent the end of the platform 30 for limiting movement of a film holder longitudinally of the platform. Stops 35 not only permit a film holder to be located in predeterminedly spaced relation to the stress-applying means 40 but are used to maintain this relationship during withdrawal of the film assembly from the film holder.

The stress-applying means 40 are constructed and arranged to apply pressure to the opposite sides of a film assembly and to draw the film assembly therethrough. One embodiment of such stress-applying means makes use of a pair of rotatably mounted wringer or pressure-applying rolls which are urgeable toward each other and which are adapted to be rotated. Such a construction is illustrated in Figs. 2, 3, and 4 where a pair of pressure-applying rolls 81 and 82 are shown in alignment with the aperture 27 which

provides a communicating passageway between the main and auxiliary compartments 11 and 12. While pressure-applying rolls are a preferred mechanism for processing purposes, other means capable of carrying out the functions of said rolls are usable with the present invention and are intended to fall within the scope thereof. Construction materials for the rolls 81 and 82 comprise steel, rubber, suitable organic plastics, and including composition materials. Both rolls may be of the same or of different materials or one or both rolls may be formed of combined materials. In this latter regard, a roll may comprise a metal core encased in a rubber sheath.

In the drawings, roll 81 comprises the bottom roll of said roll pair and has its opposite ends rotatably mounted in suitable bearings carried by the side plates 83 (see Fig. 4). The spacing between the side plates and the length of the rolls, as well as the width of the platform 30, will be controlled by the width of the film assembly to be processed.

Roll 81 is adapted to be driven and for this purpose has its shaft connected to a suitable source of power, as for example the electric motor 84, which is mounted upon a plate 85 fixed to the base plate 37 and extending upwardly therefrom. To take care of instances wherein power for the motor 84 is unavailable, a suitable extension 86 may be provided on or connected to the roll shaft for the bottom roll 81, at the end of the roll furthest removed from said motor 84. Extension 86 is adapted to extend through the wall member 21 and is provided at its free end with means for engaging a hand crank (not shown). The opening through the wall 21 is rendered substantially lighttight by suitable light-seal means 87 such as the spring and flexible washer construction shown in Fig. 2.

The upper roll 82 of the roll pair is adapted to be rotatably supported between spaced-apart arms 88 which are individually and pivotally mounted on individual pivot pins 89 extending through each plate 83. The pivot arms 88 provide means for supporting the roll 82 for movement toward and away from the roll 81 upon appropriate rocking of the arms 88 about their pivot pins 89. Each arm 88 is pivotally mounted at a position intermediate its ends.

Arms 88 are adapted to be spring-loaded whereby to urge the roll 82 into pressure contact with the roll 81. The means for spring loading arms 88 are detailed in Figs. 2 and 3. These means associate a secondary arm 90 with each roll support arm 88 and pivot one end of each arm 90 on a pin 89. The opposite end of each secondary arm 90 is positioned rearwardly of the main compartment, i. e., toward the end of the compartment furthest removed from the stress-applying means 40, and is located adjacent to the end of the arm 88 with which it is associated. As may be observed, each arm 88 is located outside of its corresponding support plate 83 while each arm 90 is located inside of its corresponding support plate. The rear ends of the arms 90 are connected together by a cross bar 91 which is secured to bosses formed on said ends of said arms 90. The bottom of the cross bar 91 is adapted to be seated on one of two steps 92 and 95 provided on a pivotally mounted stop member or dog 93 controllable by a straight-line solenoid 94 and a spring 95 connected to the stop member 93 and to a projection on the cross bar 91. Stop member 93 is supported on base plate 37.

By this arrangement, each arm 90 is usable to

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spring load its corresponding roll support arm 88 and also to rock said arm 88. For this purpose, each arm 88 is provided at its rearward end with an adjustable stud member 97 which extends through the arm and cooperates with a fixed stud carried on the cross bar 91 and extending above said cross bar. A spring 98 is associated with each arm bar 88 and 90 and is mounted therebetween and retained in its mounted position by engagement with the adjustable stud 97 and its associated fixed stud carried on the cross bar 91. It will be evident from this construction that springs 98 will urge each arm pair 88 and 90 away from each other. Keeper means, utilizing bosses 100 formed on each arm of each arm pair 88 and 90 and having an adjustable bolt member 101 extending freely therethrough, are utilized to limit the maximum separation between each said arm pair.

For the purpose of raising the bar 91 whereby to spring-load the roll support arm 88 and cause the roll 82 to be moved toward roll 81, use is made of a cam member 105 fixed to a shaft 106 rotatably mounted on the base plate 37 and extending transversely of the main compartment 11, i. e., at right angles to walls 21 and 23. As shown, shaft 106 extends through the wall 21 of the main compartment and, adjacent to the inner surface of said wall, is provided with light-seal means 107 similar to the light-seal means 87. The end of the shaft 106 which extends through said wall 21 is provided with an operating handle 108 whereby the shaft may be rocked or rotated upon actuation of said handle.

Assuming that the cross bar 91 is seated on the first or lower step 92 of the stop 93, as shown in Fig. 3, appropriate movement of the operating handle 108 will cause the cam 105 to be brought into contact with the cross bar 91 and elevate the cross bar above said step 92 for a sufficient distance so that the bottom of the cross bar will clear the second or upper step 96 of the stop member. With the solenoid 94 in unenergized condition, raising of the cross bar 91 by the cam 105 will permit stop member 93 to be pivoted in a counterclockwise direction by reason of the spring 95 whereby to move the higher or second step 96 on the stop member 93 under the cross bar. Release of handle 108 will then permit the cross bar to be seated on the higher step 96. A spring 109, shown as connected to the roll support arm 88 and to the base plate 37, will maintain the cross bar 91 in contact with the stop member 93. Cam member 105 may be spring-loaded whereby it is returned to the inoperative position shown on release of handle 108, which will also be returned to inoperative position.

As may be observed from Fig. 2, the cam member 105, stop member 93 and solenoid 94 are located centrally of the main compartment. The connection between solenoid 94 and the pivoted stop member 93 is by suitable linkage means 110.

When the cross bar 91 is seated on the upper step 96 of the stop member 93, roll support arm 88 will be spring-loaded and the roll thereof will be urged under spring pressure toward the bottom roll 81. The amount of this pressure is controlled by means of the adjusting nut on the stud 97, which will also control the gap between the rolls 81 and 82. When the solenoid 94 is energized, stop member 93 will be pivoted in a clockwise direction to locate the lower step 92 under the cross bar 91. When this occurs, the spring-loading of the arm 88 is released and the arms 88 and 90 are caused to pivot in a clockwise

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direction by spring 109 to seat the cross bar 91 on the bottom step 92 of the stop member 93.

Actuation of the handle 108 will spring-load the pressure-applying rolls 81 and 82 and move the roll 81 toward the roll 82 to provide a predetermined gap between the rolls equal to that needed for processing. As pointed out, one feature of the invention resides in means for predeterminedly separating the stress-applying means. In the embodiment illustrated in the drawings, this predetermined roll separation is accomplished by feeler mechanism making use of a spring-pressed feeler rod 111 which is slidably mounted in an upright position on a bar 112 carried by the arms 88 at a position ahead of the roll pair 81, 82 and elevated over the plane of platform 30. The feeler rod 111 is adapted to be spring-loaded upon closure of the container cover 25. For this purpose a suitable bar member 114 is shown as mounted on the cover 25 for contact with the upper end of the feeler rod 111.

The feeler rod 111 is located centrally of the main compartment 11 and is provided with a foot which supports a feeler roller 115 adapted to contact the upper surface of the film assembly during the processing thereof. As the trailing end of the film assembly is drawn between pressure rolls 81 and 82 and past the feeler roller 115, the spring-pressed feeler rod 111 moves the roller 115 downwardly and into contact with one end of a pivotally mounted lever 116, carried by the platform 30, and moves lever 116 in a counterclockwise direction to cause the lever to actuate a normally open microswitch 117. Closing of switch 117 effects the energization of the solenoid 94 to cause the solenoid to position the lower step 92 of the stop member 93 below the cross bar 91 and causes roll separation and removal of the spring-loading of the rolls.

As may be observed in Fig. 3, a horizontal plane parallel to the platform 30 and in contact with the roll 81 will be coincident with the lower surface of a film assembly mounted in a film holder carried on the platform. To obtain uniform spreading, it is desirable for this relationship to be maintained substantially throughout the movement of the film assembly through the pressure-applying rolls 81 and 82.

For this purpose, a film assembly support and guide member 120 is fixed to the end of the platform 30 adjacent the rolls 81 and 82. This member 120 has a portion inclined upwardly from the platform and is then extended in a horizontal direction. The film assembly, during movement through the rolls, is supported upon the horizontal portion of the member 120. The inclined portion of said member 120 will assist in guiding the end portion 64 of the leader into processing position between the rolls 81 and 82 when the rolls are separated. Member 120 comprises a sheet metal plate and is provided with a slot 121 centrally thereof and in alignment with the spring-operated feeler mechanism so as to permit the roll 115 thereof to pass through the member 120 for actuation of lever 116.

Details of the processing mechanism are completed with reference to a microswitch 122 carried by the cover member 25 of the main compartment 11 and microswitch 125 mounted upon the base plate 37 in the main compartment. Microswitch 122 is of the normally open type and is adapted to be closed by contact with the cam bar operating handle 58 when the cover is in down or inclosed position. For this purpose, handle 58 must be in raised position to relieve the pressure on a

film assembly within the holder 50 by retracting the back plate 52 of the holder. Microswitch 125 is also of the normally open type and is adapted to be closed by an arm or projection 126 carried on one of the pivoted arms 90. Switch 125 is closed upon actuation of the operating handle 108 to spring-load the pressure rolls and move the rolls relatively toward each other.

Conventional and simple circuit means are employed for effecting the actuation of the motor 84 and the solenoid 94 and include the switch means 117, 122 and 125. For initiating the actuation of the motor, both microswitches 122 and 125 must be in closed position. When the switches 122 and 125 are so closed, motor 84 will continue to be driven until the feeler rod 111 causes roll 115 to actuate the lever 116 to close the normally open switch 117 for energizing the solenoid 94 whereby to relieve the spring-loading of the rolls and carry out their separation. As the cross bar 91 is moved downwardly to seat on the first step 92 of the stop member, switch 125 is opened whereby to arrest actuation of the motor and consequently the drive of the bottom roll 81.

Operation of the processing apparatus to process a film assembly 60 mounted within a cassette 50 will be apparent in the light of the foregoing description. The holder 50 with the film assembly therein is placed upon the platform 30 of the processing mechanism with the leader extension 64 extending outwardly from the holder. Guide members 34 locate the film holder in alignment with the roll pair 81, 82 while stops 35 will position the leading end of the film holder at the desired spacing from the rolls. The guide and support member 120 will guide the leader extension 64 into the position between the rolls shown in Fig. 3, the rolls being separated since the processing mechanism is in an inoperative condition. In placing the film holder on the platform of the main compartment, it is necessary to have the cam bar operating handle 53 in its raised position so that the switch 122 in the electric circuit means is closed by contact with the handle whereby to permit actuation of the motor 84 upon closing the switch 125.

With the film holder and leader extension of the film assembly located as described, the cover 25 of the processing apparatus shown in Figs. 1 through 4 is closed and latched. The operating handle 108 is then operated to cause the cam member 105 to raise the cross bar 91 and bring the rolls into processing relation with respect to the film assembly while closing the switch 125 and effecting the actuation of the motor 84.

While operating handle 108 for the cam 105 has been shown as located outside of the main compartment 11, it may be positioned within the main compartment. When this just-mentioned expedient is followed, the handle 108 is actuated to effect processing positioning for the rolls 81 and 82 before the cover 25 of the compartment 11 is closed. In this instance, switch 122 is used for initiating the actuation of the motor which will occur upon closure of the cover 25.

With the cover closed and the rolls 81 and 82 being rotated in pressure contact with the leader extension 64, the film assembly is completely drawn from the film holder. As the film assembly passes through the rolls 81 and 82, it is discharged into the auxiliary compartment 12. When the trailing end of the mask portion passes the feeler roll 115, the feeler mechanism is actuated to close the switch 117, energize the solenoid 94,

separate the rolls 81 and 82 and arrest actuation of the motor 84.

As the pressure-applying rolls 81 and 82 rupture container 67 and spread its liquid content, chemical processing of the film assembly is initiated.

This chemical processing continues within the lighttight auxiliary compartment 12, which is in effect an imbibition chamber. After the imbibition time period of about one minute, the film assembly is removed from the auxiliary compartment 12. In the case of the apparatus disclosed in the drawings, this is accomplished by releasing the latch 20 and pivoting the compartment 12 about the hinge 22 to the open position shown in Fig. 1 whereby the end of the film assembly is easily accessible for removal. The film assembly, once removed from the auxiliary compartment 12, has the layers thereof stripped apart, following which the layers are completely separated from each other.

Removal of the processed film assembly from the auxiliary compartment may also be carried out from the main compartment by locating the rolls 81 and 82 at a distance from the wall 17 which provides sufficient space between said wall and said rolls for access to the auxiliary compartment 12 from within the main compartment 11 when the cover of the latter is open. Such construction is employed in instances where the auxiliary compartment is permanently fixed to the main compartment or is adapted to be retained in lighttight contact with the main compartment except for storage purposes.

During processing, the greatest separation between the pressure-applying rolls 81 and 82 will occur when the container of the film assembly passes through the rolls. Roll separation may be maintained at a generally fixed gap during passage of the entire assembly through the rolls by utilizing a second spring, similar to the spring 98 and similarly mounted between each arm pair 98 and 99 at a location between the spring 98 and pivot 89. The second-mentioned spring only comes into effect as the rolls pass over the container but is inactive during the spreading operation.

While the use of the processing apparatus has been disclosed in conjunction with the film assembly 60 mounted within the holder 50, it will be well understood that the holder 50 is not essential to carrying out the processing of the film assembly. Thus, the film assembly 60 may be processed without the use of any holder and merely by placing it within the main compartment 11 on the platform 30 with the leader extension 64 located between the separated pressure-applying rolls 81 and 82. In fact, film assembly 50 may be processed without being held in a holder and without being supported on a platform in the absence of interfering contact of the film assembly with various component parts of the apparatus. However, when either of the just-mentioned practices is followed, it will be necessary to place the film assembly in the processing apparatus 10 in a dark room or under safe light since the film assembly will be unprotected from exposure by actinic light.

While the general details of the processing apparatus have been set forth in the foregoing, it will be appreciated that various modifications thereof fall within the scope of the invention. For example, in instances where the auxiliary compartment is removably mounted on the main compartment, an additional microswitch of the normally open type may be included in the means for controlling the motor 84 and located for op-

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eration into closed position only when the auxiliary compartment is secured in lighttight contact with the main compartment of the apparatus.

Additionally, the processing apparatus may be equipped with timing mechanism adapted to indicate when a processing film assembly has remained in the auxiliary compartment for a sufficient imbibition time. Such mechanism may be either electrically or mechanically driven and its actuation may be initiated upon operation of the starting handle 108 or at the time the rolls are separated after passage of the trailing end of the mask beyond the feeler roll 115 of the feeler mechanism.

Furthermore, the guide members 34 may be mounted on the platform 30 so that they are movable toward and away from each other in a direction transversely of the platform. By such construction, the side guides may be individually movable or may be connected through suitable mechanical linkages whereby they may be moved simultaneously. The processing apparatus will thus be adapted to accommodate different sizes of film holders due to the fact that the side guides are adjustable. In instances where the side guides are adjustably movable, stop means for locating the leading end of the film holder will be mounted on the leading end of the side guides whereby the stops will be adjustable with the guides.

Also, as a variation in the platform construction, while two cutaway portions 33 have been disclosed for the purpose of facilitating placement of the film holder on the platform, it will be appreciated that a greater or lesser number of cutaway portions located at other or additional places may be utilized.

In the design shown, the main compartment 11 is adapted to be employed as a storage compartment when the apparatus is not in use. Thus it is possible, after removal of the auxiliary compartment 12, to store it in the main compartment 11. Likewise, the film holder 50 and even a supply of film assemblies may be carried within the main compartment.

Since certain changes may be made in the above apparatus without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. Apparatus for processing a photographic film assembly having a pair of superposable liquid-confining layers provided with a photosensitive portion on the inner surface of one layer and adapted to be processed by a processing liquid spread between the layers and wherein leader means are attached to said layers to extend from said layers, said apparatus comprising housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film assembly therein and also providing means for rendering said housing means substantially lighttight when in closed position, means within said main compartment comprising a pair of pressure-applying members engageable in pressure contact with opposite sides of said film assembly and actuatable for effecting the ad-

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vancement of said film assembly therebetween while effecting the spreading of said liquid composition between the layers of said film assembly, means normally urging said pressure-applying members in separated relation to each other whereby to facilitate the positioning of the leader means of said film assembly between said pressure-applying members, means for engaging said pressure-applying members with said film assembly, including the leader means thereof, and means for effecting the actuation of said pressure-applying members, said auxiliary compartment being aligned with said pressure-applying members on the discharge side thereof in a position to receive said film assembly as it is advanced upon the actuation of said pressure-applying members to effect said advance.

2. Apparatus as defined in claim 1 for processing a photographic film assembly, including a platform mounted within said main compartment in alignment with said pair of pressure-applying members and providing means for supporting a film assembly for engagement by said pressure-applying members for movement therebetween.

3. In apparatus for processing a photographic film assembly which is withdrawably mounted within a film holder and which comprises a pair of superposable liquid-confining layers provided with a photosensitive portion of the inner surface of one layer and adapted to be processed by a processing liquid spread between the layers and wherein leader means are attached to said layers to extend from said layers and through an opening in said film holder, housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film assembly therein and also providing means for rendering said housing means substantially lighttight when in closed position, means within said main compartment comprising a pair of pressure-applying members engageable in pressure contact with opposite sides of the portion of said film assembly extending from said film holder and actuatable for effecting the advancement of said film assembly therebetween while withdrawing the film assembly from the film holder and effecting the spreading of said liquid composition between the layers of said film assembly, a platform mounted within said main compartment on one side of said pressure-applying members and in alignment therewith and providing means for supporting said film holder and film assembly, means associated with said platform for positioning said film holder in processing alignment with said pressure-applying members for location of said leader means between said pressure-applying members, said positioning means also maintaining said film holder in said processing alignment during withdrawal of the film assembly therefrom, means normally urging said pressure-applying members in separated relation to each other whereby to facilitate the positioning of the leader means of said film assembly between said pressure-applying members, means for engaging said pressure-applying members with said film assembly, including the leader means thereof, and means for effecting the actuation of said pressure-applying members, said auxiliary compartment being aligned with said pressure-applying mem-

bers on the opposite side thereof from said platform and in a position to receive said film assembly upon its advancement between said pressure-applying members.

4. Apparatus for processing a photographic film assembly of the character having a pair of superposable liquid-confining layers, including a photosensitive portion on the inner surface of one of the layers, a rupturable container holding a liquid composition mounted between the layers adjacent one end thereof, and leader means at the container end of the layers and adapted to extend outwardly from the end of said layers, said apparatus comprising housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film assembly therein and also providing means for rendering said housing means substantially lighttight when in closed position, and means within said main compartment engageable in pressure contact with opposite sides of said film assembly, including said leader means, and actuatable for effecting the advancement of said film assembly and for applying a sufficient mechanical stress to said container to cause the release of its liquid content and the spreading of the released liquid between said layers as said film assembly is advanced, the means for applying said stress and advancing said film assembly comprising a pair of pressure-applying members normally positioned in separated relation to each other whereby to facilitate the positioning of the leader means of said film assembly between said pressure-applying members, means for engaging said pressure-applying members with said film assembly and means for effecting the actuation of said pressure-applying members, said auxiliary compartment being aligned with said pressure-applying members in a position to receive said film assembly upon its advancement between said pressure-applying members.

5. Apparatus as defined in claim 4 for processing a photographic film assembly wherein said pressure-applying members comprise a pair of rotatably mounted rolls.

6. Apparatus for processing a photosensitive film assembly which is withdrawably mounted within a film holder and which comprises a pair of superposable liquid-confining layers, including a photosensitive portion on the inner surface of one of the layers, a rupturable container holding a liquid composition mounted between the layers adjacent one end thereof, and leader means attached to said layers at the container end of the layers and adapted to extend outwardly from the end of said layers and through an opening in said film holder, said apparatus comprising housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film assembly therein and also providing means for rendering said housing means substantially lighttight when in closed position, means within said main compartment, comprising a pair of movably mounted pressure-applying members, engageable in pressure contact with opposite sides of said film assembly, including said leader means, and actuatable for effecting the

advancement of said film assembly between said pressure-applying members and for applying a sufficient mechanical stress to said container to cause the release of its liquid content and the spreading of the released liquid between said layers as said film assembly is advanced, a platform mounted within said main compartment on one side of said pressure-applying members and in alignment therewith and providing means for supporting said film holder and film assembly in processing alignment with said pressure-applying members for engagement of said film assembly including said leader means therebetween, said auxiliary lighttight compartment communicating with said main compartment and aligned with said pressure-applying members on the opposite side thereof from said platform and in a position to receive said assembly as it is drawn through said pressure-applying members, means normally urging said pressure-applying members in separated relation to each other whereby to facilitate the positioning of the leader means of said film assembly between said pressure-applying members, means for engaging said pressure-applying members with said film assembly, including the leader means thereof, and means for effecting the actuation of said pressure-applying members to advance said film assembly therebetween and into said auxiliary compartment.

7. Apparatus as defined in claim 6 for processing a photosensitive film assembly and including means for separating said pressure-applying members before said film assembly has been completely advanced between said pressure-applying members.

8. Apparatus as defined in claim 6 for processing a photosensitive film assembly wherein said pressure-applying means comprises a pair of rotatably supported rolls mounted for relative movement toward and away from each other.

9. Apparatus as defined in claim 8 for processing a photosensitive film assembly and including means for moving said rolls out of pressure-applying engagement with respect to a film assembly being advanced therebetween at a location near the end of the film assembly which is furthest removed from said container.

10. Apparatus as defined in claim 6 for processing a photosensitive film assembly wherein said platform is provided with at least one cutaway portion providing means for facilitating the placement of said film holder on said platform for alignment with said pressure-applying members.

11. Apparatus as defined in claim 6 for processing a photosensitive film assembly and including means associated with said platform for assisting in placing said film holder in processing alignment with said pressure-applying members.

12. Apparatus as defined in claim 6 for processing a photosensitive film assembly and including means associated with said platform for locating said film holder in processing alignment with said pressure-applying members, said means also being capable of maintaining said film holder in said processing alignment during the withdrawal of said film assembly therefrom.

13. Apparatus as defined in claim 12 for processing a photosensitive film assembly and including means for separating said pressure-applying members after said film assembly has been completely withdrawn from said film holder and before said film assembly has been completely advanced between said pressure-applying members.

14. Apparatus as defined in claim 6 for proc-

essing a photosensitive film assembly and wherein guide means, contactable with the sides of said film holder for aligning said film holder with said pressure-applying members, are associated with said platform and wherein stop means, against which said film holder is adapted to be positioned in bearing contact, are associated with said platform for maintaining the end of said film holder through which said film assembly is withdrawn in spaced relation to said pressure-applying members.

15. In apparatus for processing a photosensitive film assembly mounted within a film holder having an opening in an end thereof through which said film assembly is withdrawable and wherein said film assembly comprises a pair of superposable liquid-confining layers, including a photosensitive portion on the inner surface of one of the layers, a rupturable container holding a liquid composition mounted between the layers adjacent one end thereof and leader means attached to said layers at the container end of the layers and adapted to extend outwardly from the end of said layers and through the opening in said film holder, in combination, housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film assembly therein and also providing means for rendering said housing means substantially lighttight when in closed position, a platform mounted within said main compartment in alignment with said auxiliary compartment, said platform providing means for supporting said film holder and a film assembly within said main compartment for withdrawing said film assembly from said film holder and for processing said film assembly, means, within said main compartment, located between said platform and said auxiliary compartment in alignment therewith for engagement with opposite sides of said film assembly, including said leader means, for advancing said film assembly therebetween and into said auxiliary compartment while applying sufficient mechanical stress to said container of said film assembly to cause the release of its liquid content and the spreading of the released liquid between said liquid-confining layers as said film assembly is advanced therebetween, said stress-applying means comprising a pair of pressure-applying members movable into pressure contact with said film assembly on opposite sides thereof, means normally urging said pressure-applying members in separated relation to each other whereby to facilitate the positioning of the leader means of said film assembly between said pressure-applying members, means for engaging said pressure-applying members with said leader means extending from said film holder, means for effecting the actuation of said pressure-applying members to advance said film assembly for discharge into said auxiliary compartment, and means associated with said receptacle and operably dependent upon contact with a film holder on said platform upon closure of said closure means for controlling the initiation of the film assembly advancing action of said pressure-applying means.

16. In apparatus for processing a photosensitive film assembly mounted within a film holder having an opening in an end thereof through which said film assembly is withdrawable and wherein said film assembly comprises a pair of

superposable liquid-confining layers, including a photosensitive portion on the inner surface of one of the layers, a rupturable container holding a liquid composition mounted between the layers adjacent one end thereof and leader means attached to said layers and adapted to extend outwardly from the container end of said layers and through the opening in said film holder, in combination, housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film assembly therein and also providing means for rendering said housing means substantially lighttight when in closed position, a platform mounted within said main compartment in alignment with said auxiliary compartment, said platform providing means for supporting said film holder and a film assembly within said main compartment for withdrawing said film assembly from said film holder and for processing said film assembly, means, within said main compartment, located between said platform and said auxiliary compartment in alignment therewith for engagement with opposite sides of said film assembly, including said leader means, for advancing said film assembly therebetween and into said auxiliary compartment while applying sufficient mechanical stress to said container of said film assembly to cause the release of its liquid content and the spreading of the released liquid between said liquid-confining layers as said film assembly is advanced therebetween, said stress-applying means comprising a pair of pressure-applying members movable into pressure contact with said film assembly on opposite sides thereof, means normally urging said pressure-applying members in separated relation to each other whereby to facilitate the positioning of the leader means of said film assembly between said pressure-applying members, means for engaging said pressure-applying members with said leader means extending from said film holder, means for effecting the actuation of said pressure-applying members to advance said film assembly for discharge into said auxiliary compartment, and means for arresting the film assembly advancing action of said pressure-applying means.

17. In apparatus as defined in claim 16 for processing a photosensitive film assembly, means for predeterminedly separating said pressure-applying members from engagement with said film assembly.

18. In apparatus as defined in claim 17 for processing a photosensitive film assembly, means, associated with said housing means and operably dependent upon contact with a film holder on said platform upon closure of said closure means, for controlling the initiation of the film assembly withdrawing action of said pressure-applying means.

19. Apparatus as defined in claim 1 for processing a photographic film assembly wherein said auxiliary lighttight compartment is mounted on an outer surface of said main compartment to extend outwardly therefrom and wherein said main compartment and said auxiliary compartment are provided with cooperating apertures whereby to permit passage of said film assembly from said main compartment into his auxiliary compartment.

20. In apparatus as defined in claim 1 for processing a photographic film assembly, means for

mounting said auxiliary lighttight compartment on an outer surface of said main compartment for pivotal movement toward and away from said outer surface, and fastening means for securing said auxiliary compartment in lighttight contact with the outer surface of said main compartment upon which it is mounted, said main compartment and said auxiliary compartment being provided with cooperating apertures which are aligned with each other when said auxiliary compartment is in lighttight contact with said main compartment whereby to permit passage of said film assembly from said main compartment to said auxiliary compartment.

21. In apparatus as defined in claim 4 for processing a photographic film assembly, a platform mounted in said main compartment and providing means for supporting said film assembly, said platform being operatively aligned with said pressure-applying members on the side thereof removed from said auxiliary compartment and with the end of said platform adjacent said pressure-applying members being spaced from said pressure-applying members, and means mounted on said end of said platform and extending said platform toward said pressure-applying members for supporting said film assembly for movement through said pressure-applying means, said means which extend said platform also serving as means for guiding the leader means of said film assembly into operative relation with said pressure-applying means for engagement thereby upon moving said film assembly along said platform and toward said pressure-applying means.

22. Apparatus as defined in claim 1 for processing a photographic film assembly wherein said pressure-applying members comprise a pair of pressure-applying rolls rotatably mounted in superposed relation to each other, one of said rolls being rotatably supported between spaced-apart support members mounted within said main compartment, a pair of spaced-apart pivot arms, a second pair of spaced-apart support members, means for pivoting each individual pivot arm to an individual support member of said second pair of support members, said pivot arms being pivoted at a location immediately of the ends thereof, said pivot arms having one end thereof located adjacent the first of said rolls, said second roll being rotatably mounted between said pivot arms at the end thereof adjacent said first roll, means for spring-loading said pivot arms and for urging the roll carried therebetween toward said first roll, and means for predeterminedly releasing said spring-loading of said pivot arms and for moving said second roll away from said first roll.

23. In apparatus for processing a photosensitive film assembly mounted within a film holder having an opening in an end thereof through which said film assembly is withdrawable and wherein said film assembly comprises a pair of superposable liquid-confining layers which are paced in said superposed relation when said film assembly is mounted within said film holder, and said film assembly also comprising a photosensitive portion on the inner surface of one of said liquid-confining layers, a rupturable container holding a liquid composition and mounted between the layers adjacent an end thereof which constitutes the leading end of the film assembly, and leader means attached to said layers and adapted to extend outwardly from said leading end of said film assembly and through the opening in said film holder, the other end of said

film assembly constituting the trailing end thereof, in combination, housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film holder therein and also providing means for rendering said housing means substantially lighttight when in closed position, a platform mounted within said main compartment in alignment with said auxiliary compartment, said platform providing means for supporting said film holder and said film assembly within said main compartment in position to permit the withdrawal of said film assembly from said film holder to process said film assembly and discharge it into said auxiliary compartment, means, within said main compartment, located between said platform and said auxiliary compartment and in alignment therewith for engagement with opposite sides of said film assembly and comprising a pair of pressure-applying rolls, support means rotatably mounting a first of said rolls in said main compartment, means rotatably mounting the second of said rolls in superposed relation to said first roll and for movement toward and away from said first roll, spring means supported in said main compartment and operable for urging said second roll into processing relation and toward said first roll upon loading said spring means whereby to engage said rolls with opposite sides of a film assembly, including the leader means thereof, positioned between said rolls, means for loading said spring means for effecting the positioning of said rolls in said processing relation, said rolls, when in spring-loaded condition and in processing relation, developing sufficient mechanical stress to rupture said container of said film assembly and to release its liquid content and spread the released liquid between said liquid-confining layers as said film assembly is drawn through said rolls by the rotation of said rolls, said rolls also providing means for discharging the film assembly into said auxiliary compartment, drive means for rotating said first roll, feeler mechanism contactable with one surface of said film assembly as said film assembly is withdrawn from said film holder, said feeler mechanism being mounted within said main compartment at a location in the path along which said film assembly is moved as it is withdrawn from said film holder by said rolls and at a position in said path between the end of said platform and said rolls, means for predeterminedly separating said rolls from said processing relation by releasing the loading of said spring means, means for arresting the actuation of said drive means, said feeler mechanism providing means for initiating the actuation of said means for predeterminedly separating said rolls at times when said feeler mechanism is free of contact with said film assembly, and means carried by said housing means and operably dependent on contact with said film holder for controlling the initiation of the actuation of said drive means, said apparatus including means for actuating said drive means.

24. In apparatus for processing a photosensitive film assembly mounted within a film holder having an opening in an end thereof through which said film assembly is withdrawable and wherein said film assembly comprises a pair of superposable liquid-confining layers which are

placed in said superposed relation when said film assembly is mounted within said film holder, and said film assembly also comprising a photosensitive portion on the inner surface of one of said liquid-confining layers, a rupturable container holding a liquid composition and mounted between the layers adjacent an end thereof which constitutes the leading end of the film assembly, and leader means attached to said layers and adapted to extend outwardly from said leading end of said film assembly and through the opening in said film holder, the other end of said film assembly constituting the trailing end thereof, in combination, housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film holder therein and also providing means for rendering said housing means substantially lighttight when in closed position, a platform mounted within said main compartment in alignment with said auxiliary compartment, said platform providing means for supporting said film holder and said film assembly within said main compartment in position to permit the withdrawal of said film assembly from said film holder to process said film assembly and discharge it into said auxiliary compartment, means, within said main compartment, located between said platform and said auxiliary compartment and in alignment therewith for engagement with opposite sides of said film assembly and comprising a pair of pressure-applying rolls, support means rotatably mounting a first of said rolls in said main compartment, a pair of pivot arms, means pivotally supporting said pivot arms in spaced-apart relation to each other within said main compartment, each said pivot arm being pivotally supported intermediate of the ends thereof and both said pivot arms having one end in common which is located adjacent the first of said rolls, means rotatably mounting the second of said rolls between said pivot arms at the end thereof adjacent said first roll whereby said rolls are rotatably supported in superposed relation for relative movement toward and away from each other, spring means supported in said main compartment and operably connected to said pivot arms for moving said pivot arms and the roll carried thereby into processing relation and toward said first roll upon loading said spring means whereby to engage said rolls with opposite sides of a film assembly, including the leader means thereof, positioned between said rolls, means for loading said spring means for effecting the positioning of said rolls in said processing relation, said rolls, when in spring-loaded condition and in processing relation, developing sufficient mechanical stress to rupture said container of said film assembly and to release its liquid content and spread the released liquid between said liquid-confining layers as said film assembly is drawn through said rolls by the rotation of said rolls, said rolls also providing means for discharging the film assembly into said auxiliary compartment, drive means for rotating said first roll, feeler mechanism contactable with one surface of said film assembly as said film assembly is withdrawn from said film holder, said feeler mechanism being mounted within said main compartment at a location in the path along which said film assembly is moved as it is with-

drawn from said film holder by said rolls and at a position in said path between the end of said platform and said rolls, means for predeterminedly separating said rolls from said processing relation by releasing the loading of said spring means, means for arresting the actuation of said drive means, said feeler mechanism providing means for initiating the actuation of said means for predeterminedly separating said rolls at times when said feeler mechanism is free of contact with said film assembly, and means carried by said housing means and operably dependent on contact with said film holder for controlling the initiation of the actuation of said drive means, said apparatus including means for actuating said drive means.

25. In apparatus for processing a photosensitive film assembly mounted within a film holder having an opening in an end thereof through which said film assembly is withdrawable and wherein said film assembly comprises a pair of superposable liquid-confining layers which are placed in said superposed relation when said film assembly is mounted within said film holder, and said film assembly also comprising a photosensitive portion on the inner surface of one of said liquid-confining layers, a rupturable container holding a liquid composition and mounted between the layers adjacent an end thereof which constitutes the leading end of the film assembly, and leader means attached to said layers and adapted to extend outwardly from said leading end of said film assembly and through the opening in said film holder, the other end of said film assembly constituting the trailing end thereof, in combination, housing means having a main compartment and in communication therewith an auxiliary compartment, said housing means including a movably mounted member providing closure means for gaining access to said main compartment whereby to permit the placement of a film holder therein and also providing means for rendering said housing means substantially lighttight when in closed position, a platform mounted within said main compartment in alignment with said auxiliary compartment, said platform providing means for supporting said film holder and said film assembly within said main compartment in position to permit the withdrawal of said film assembly from said film holder to process said film assembly and discharge it into said auxiliary compartment, means, within said main compartment, located between said platform and said auxiliary compartment and in alignment therewith for engagement with opposite sides of said film assembly and comprising a pair of pressure-applying rolls, support means rotatably mounting a first of said rolls in said main compartment, a pair of pivot arms, means pivotally supporting said pivot arms in spaced-apart relation to each other within said main compartment, each said pivot arm being pivotally supported intermediate of the ends thereof and both said pivot arms having one end in common which is located adjacent the first of said rolls, means rotatably mounting the second of said rolls between said pivot arms at the end thereof adjacent said first roll whereby said rolls are rotatably supported in superposed relation for relative movement toward and away from each other, spring means supported in said main compartment and operably connected to said pivot arms for moving said pivot arms and the roll carried thereby into processing relation and toward said first roll upon loading said

spring means whereby to engage said rolls with opposite sides of a film assembly, including the leader means thereof, positioned between said rolls, means for loading said spring means for effecting the positioning of said rolls in said processing relation, said rolls, when in spring-loaded condition and in processing relation, developing sufficient mechanical stress to rupture said container of said film assembly and to release its liquid content and spread the released liquid between said liquid-confining layers as said film assembly is drawn through said rolls by the rotation of said rolls, said rolls also providing means for discharging the film assembly into said auxiliary compartment, drive means for rotating said first roll, feeler mechanism contactable with one surface of said film assembly as said film assembly is withdrawn from said film holder, said feeler mechanism being mounted within said main compartment at a location in the path along which said film assembly is moved as it is withdrawn from said film holder by said rolls and at a position in said path between the end of said platform and said rolls, means for predeterminedly separating said rolls from said processing relation by releasing the loading of said spring means, means for arresting the actuation of said drive means, said feeler mechanism providing means for initiating the actuation of said means for predeterminedly separating said rolls at times when said feeler mechanism is free of contact with said film assembly, means carried by said housing means and operably dependent on contact with said film holder for controlling the initiation of the actuation of said drive means, said apparatus including means for actuating said drive means, said platform having guide means positioned along the sides thereof

for contact with the sides of said film holder when said film holder is supported on said platform, said guide means being effective to locate said film holder when positioned on said platform in processing alignment with said pressure-applying rolls, stop means positioned adjacent the end of said platform nearest said pressure-applying rolls for contact with an end of said film holder when the film holder is supported on said platform, said stop means being effective for maintaining the end of said film holder through which said film assembly is withdrawn in spaced relation to said pressure-applying rolls during the withdrawal and processing of the film assembly from the film holder, and means mounted on said end of said platform and extending said platform toward said pressure-applying rolls for supporting said film assembly for movement through said rolls, said means which extend said platform also serving as means for guiding the leader means of said film assembly between said pressure-applying rolls when said leader means is extended from said film holder and said film holder is placed upon said platform and moved toward said pressure-applying rolls and into contact with said stop means at a time when said pressure-applying rolls are in unloaded condition.

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