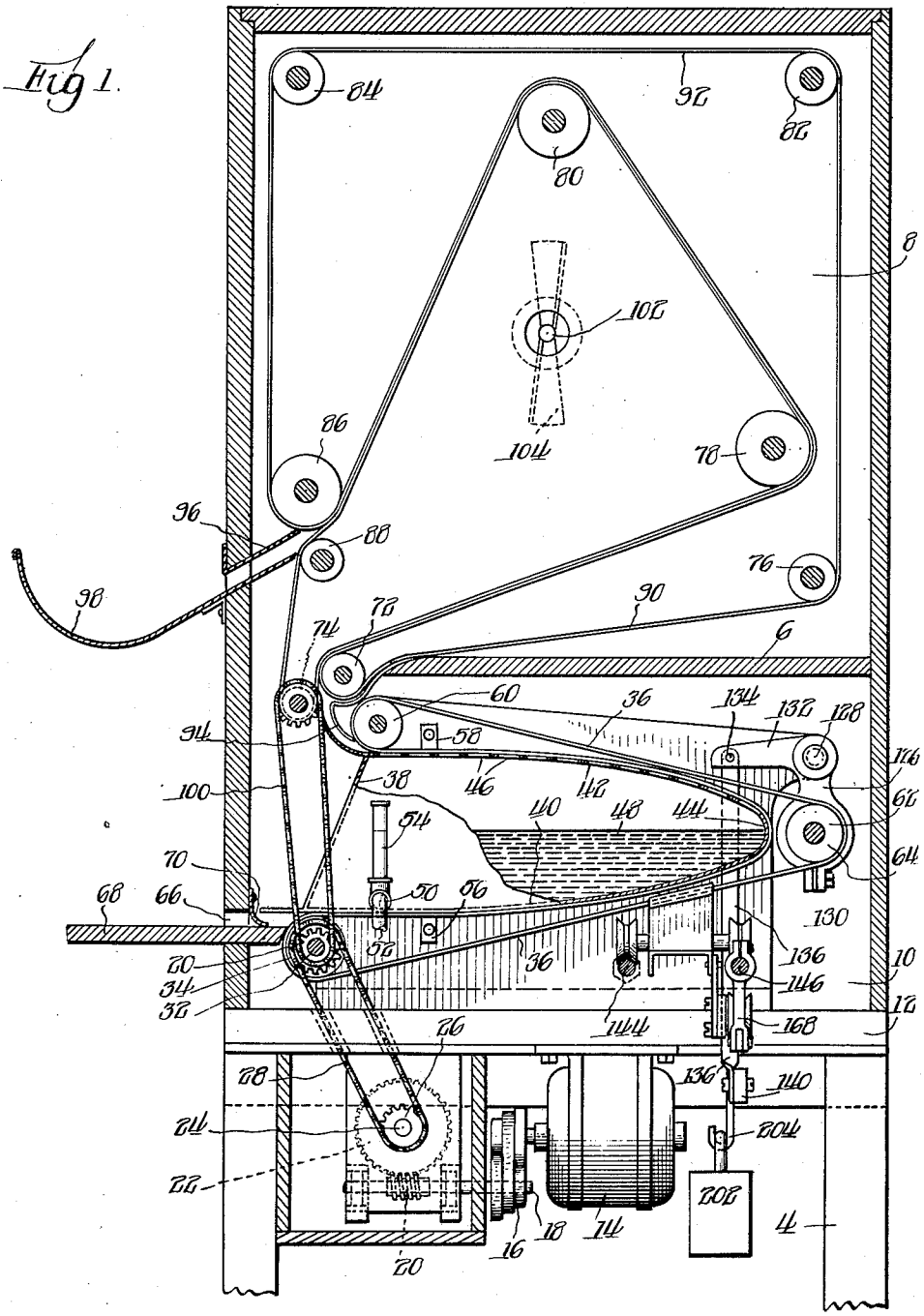
Jan. 19, 1932. A. LANGSNER 1,841,482

DEVELOPING APPARATUS

Filed Jan. 12, 1928 2 Sheets-Sheet 1

Fig 1.



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DEVELOPING APPARATUS

Filed Jan. 12, 1928 2 Sheets-Sheet 2

Fig. 1.

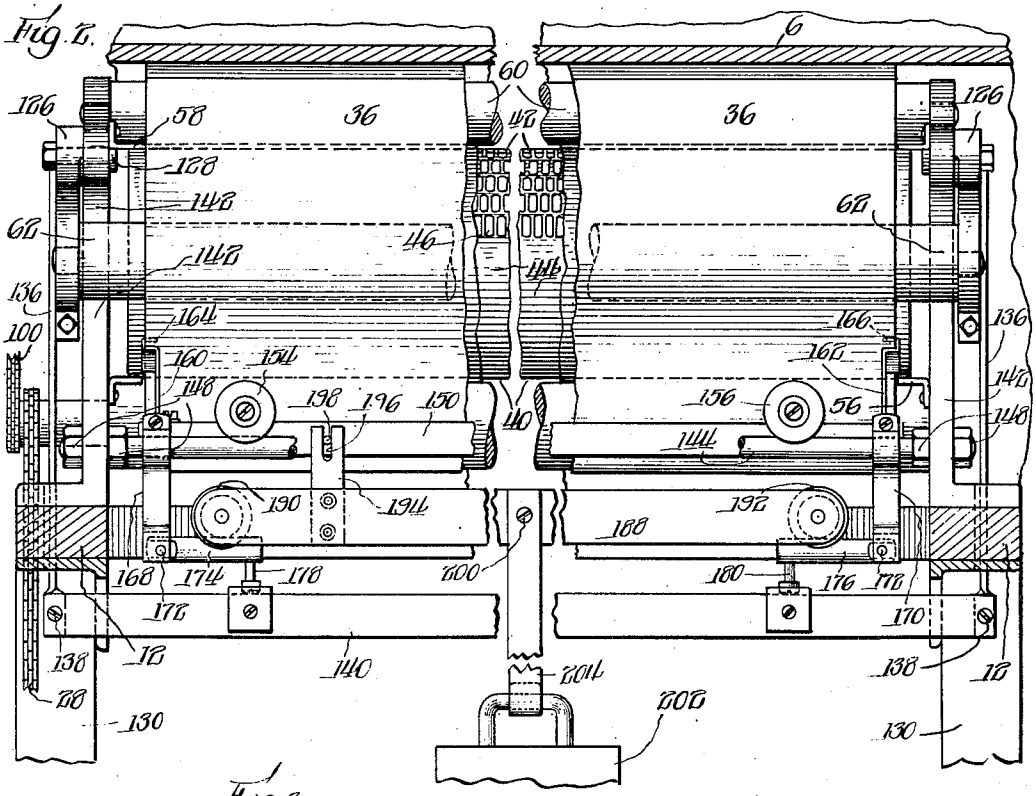


Fig. 3.

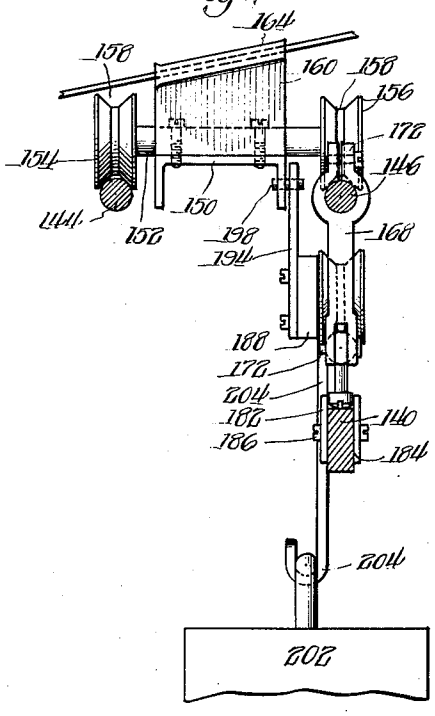


Fig. 4.

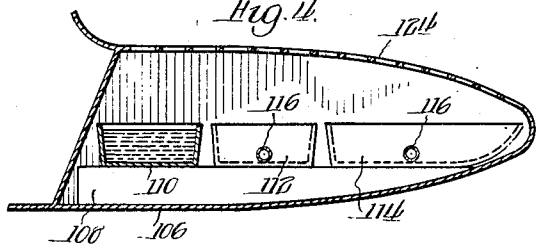
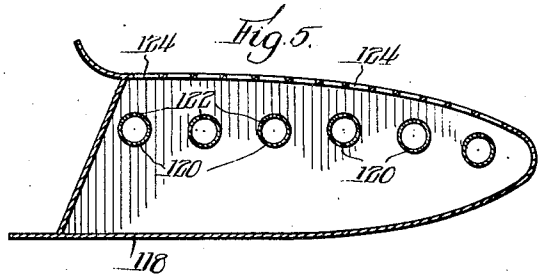


Fig. 5.



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Patented Jan. 19, 1932 1,841,482

UNITED STATES PATENT OFFICE

ADOLPH LANGSNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO EUGENE DIETZGEN COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE

DEVELOPING APPARATUS

Application filed January 12, 1928. Serial No. 246,137.

My invention relates to an improved type of developing apparatus for developing light sensitive material such as light sensitive paper by the action of developing gases and particularly ammonia gas.

One of the objects of my invention resides in providing a very compactly arranged developing apparatus adapted to develop not only continuous strips but sheets of light sensitive material in the minimum amount of time and without danger of causing the material to warp or bleed during the developing operation.

Another object of my invention resides in providing such a device wherein the developing action is brought about by the utilization of ammonia fumes arising from a pool of liquid ammonia contained within the developing cabinet and wherein the tank containing the ammonia constitutes a part of the feeding means as by its co-operation with a traveling belt which is arranged to drag the light sensitive material across a foraminated portion thereof through which the developing gases pass and into contact with the sensitive side of the traveling light sensitive material.

Further objects of my invention reside in the particular details of formation of this tank whereby it functions not only as a container for the developing liquid and also as a re-active feeding surface over which the belt may drag the light sensitive material, but also in modified constructions of the tank which are arranged not only to hold separate pans containing the liquid but is also formed to permit the developing gas itself to be ejected directly into the tank and to pass through the foraminated portion thereof.

Another object of my invention resides in the means for feeding the liquid ammonia into and out of the tank.

Yet another object of my invention resides in providing a developing apparatus including an ammonia tank adapted to contain gaseous developing medium, together with means for feeding light sensitive material across the top of said tank whereby to bring the light sensitive side of the material into the zone of action of the gas for developing it and wherein the feeding means for the light sensitive material in traveling across the top of the tank forms a closure for the same and prevents the escape of the gas therein.

Yet another object of my invention resides in the compact arrangement of this developing tank which also comprises a portion of the traveling blanket drag feed and in the arrangement of the feeding belts or devices in the ventilating chamber which communicate with the discharge end of the blanket feed and wherein the arrangement is such as to receive the sheets or strips from the blanket feed about the tank and to pass them in a continuous manner in a tortuous path through the ventilating chamber and thence discharge the same from the cabinet whereby occluded gases in the developed paper are removed in the developing chamber.

Still a further object of my invention resides in the means for automatically keeping the traveling blanket in registration with the curved guide walls of the tank and in registration with the guide rolls whereby the usual difficulty experienced in connection with the blanket running off the rolls at one side or other is eliminated and whereby the necessity of stopping the machine and rearranging the blanket and strip of light sensitive material is overcome.

These and other objects of my invention will be apparent from a perusal of the following specification when taken in connection with the accompanying drawings, wherein—

Fig. 1 is a side sectional view of my improved type of device;

Fig. 2 is a side elevation of the lower portion of the developing portion of Fig. 1;

Fig. 3 is a large detailed cross-sectional view of the automatic blanket adjustment mechanism;

Fig. 4 is a modified view of the re-active feeding surface containing pans of liquid ammonia; and

Fig. 5 is another type of re-active feeding surface showing the manner of utilizing pipes for the introduction of the developing gas into the tank.

Referring now to the drawings in detail,

the preferred form of my invention comprises a main cabinet 2 mounted on supporting legs 4 and the upper portion of the cabinet 2 includes a horizontal partition 6 which subdivides the cabinet into a ventilating chamber 8 and a developing chamber 10. The basal portion 12 of the cabinet 2 has depending therefrom a motor 14 which, by means of suitable gears 16, drives a spindle 18 carrying a worm 20 meshing with a large worm gear 22 on a shaft 24 carried by the support 12. This shaft in turn carries a sprocket gear 26 over which runs the chain 28 meshing with a similar spindle 30 on a shaft 32 mounted on any appropriate support. This shaft in turn carries a larger feed roll 34 about which passes a belt or blanket 36 which forms one part of the feeding means for the light sensitive material.

In my present invention I propose to accomplish the developing action of the light sensitive material either in continuous strip form or in separate sheets by the action of developing gas such as ammonia gas rising from a source of liquid ammonia held in a tank or container in the developing chamber, and I also propose to utilize the outer wall of this tank, or a portion of it, as a re-active feeding surface which is smooth on its outer face and to arrange a continuous blanket or carrier so as to move continuously and in contact with this re-active feeding face of the tank whereby to drag the light sensitive material across the outer wall of the tank and across a foraminated portion thereof through which the gas rising from the ammonia within the tank may pass into contact with the light sensitive material as it is fed or dragged along by the blanket. By means of this construction I am enabled compactly to arrange all of the apparatus within a relatively small cabinet. In the embodiment illustrated I provide a preferably sheet metal tank 38 and preferably of the cross-section illustrated, the same having a lower curved wall 42 and a curved nose 44. This tank extends across the width of the cabinet and is preferably somewhat wider than the width of the maximum width of the light sensitive material to be developed. At its upper wall 42 this tank is provided with slots or other foraminations or openings 46 which extend the width of the tank at a point sufficiently above the maximum liquid level line 48 within the tank so that no possible leakage of the ammonia can occur. The tank is filled with ammonia by means of a flexible tubing 50 at one end thereof and may be drained by means of a second pipe 52 either at the other end or same end thereof. If desired, the tank may be formed with a gauge glass 54 for showing the liquid level within the tank. The tank is fastened in position by means of straps 56 and 58 which engage the supports of the cabinet 2. The blanket or belt 36 is arranged to travel across the under face 40 of this tank thence around the curved nose 44 and thence upwardly across the foraminated upper surface 42 of the tank from which point the belt passes over a guide pulley 60 and thence rearwardly over another guide pulley 62 mounted on a shaft 64 hereinafter referred to. From this point the belt 36 passes downwardly and forwardly and thence around the drive pulley 20 and thence backward into contact and across the lower face 40 of the tank, thus completing a circuit. It will be noted that a portion or stretch of the blanket always covers the foraminated portion of the tank so that the blanket, normally seals the tank against the escape of developing gases.

The lower front of the cabinet 2 is provided with an opening 66 through which the light sensitive material may be fed across a ledge 68 and under a strip of felt 70 adapted wipingly to engage the light sensitive material so as to prevent the escape of the developing gases through the opening 66. As the belt travels within the tank, as hereinbefore described, it will tend to grip the inwardly extending end of any light sensitive material which is projected through the opening 66 and carry it into contact with the lower exterior wall 40 of the tank. Since the outer walls of this tank are relatively smooth and since the driving belt 36, which may be formed either of canvas, rubberized canvas or rubberized fabric, forms a relatively strong gripping surface, this belt will grip the light sensitive material, such as paper, and drag it across the smooth bottom face 40 of the tank thence around the nose 44 thence across the foraminated upper wall portion 42 at which point the gases arising through the perforations or slots 46, will come into contact with the light sensitive side of this paper and will cause it to be developed during its travel.

The cabinet also includes a ventilating chamber 8 wherein the paper is carried from the discharge end of the tank and blanket feed into this chamber and is then fed about in a tortuous path while at the same time being subjected to the action of a suction exhaust which pulls or drags a column of air through this chamber so as to remove the occluded gases from the developed paper. My improved form of mechanism for carrying the light sensitive material through this ventilating chamber 8 comprises a guide roll 72 located at the end of the partition member 6 and adjacent the guide roll 60 within the developing chamber. In addition, I provide another guide roll 74 located close to the guide roll 72 and I provide other guide rolls such as 76, 78, 80, 82, 84, 86 and 88 all located within the chamber 8 and arranged so as to have a plurality of belts, two in the present instance, passing about them. For instance, a foraminous belt 90 passes about the guide roll 72 thence moves upwardly and passes around

guide roll 78 and then around guide roll 80 and thence around guide roll 88, around guide roll 74 and back to guide roll 72, thus completing its circuit. In addition, the other belt 92 passes about the guide roll 84 thence about guide roll 86 thence about 80, 78, 72, 76 and 82 and thence back to 84. These two belts travel together between the guide rolls 72, 78, 80 and 86 and travel separately the remainder of their paths of travel. It will be noticed that the other guide rolls 72 and 74 are arranged opposite the discharge from between the blanket 36 and upper surface 42 of the tank, there being a deflector 94 so disposed as to deflect the discharge from the tank and blanket 36 into position between the two traveling conveyors 90 and 92 as they pass over the guide roll 72 from which point these two belts traveling together over the guide rolls 78, 80 and thence between 86 and 88 serve to carry the light sensitive material either as a continuous strip or in sheet form in a tortuous path in the ventilating chamber 8 to the discharge guideway 96 from which point the light sensitive material is finally distributed into the curled bracket 98 at the front of the machine. It will be noticed that the guide roll 74 is driven by means of a sprocket 100 from the spindle guide roll 30 in the developing chamber. The ventilating chamber 8 is provided with an air inlet opening 102 at one end and with a connection to a suction fan 104 at the opposite end so that a column of air will be drawn through this ventilating chamber as hereinbefore described.

In Figures 4 and 5 I have shown a modification of the tank construction which forms the re-active guiding surface over which the blanket 36 passes. For instance, in Figure 4 the tank 106 instead of being constructed to hold directly the liquid ammonia, is provided with a basal support 108 on which are mounted a plurality of pans 110, 112 and 114 containing the liquid ammonia and these pans are preferably provided with outlets 116 which are arranged to drain either directly outside of the main tank 106 to a common discharge or are arranged to drain into the tank 106 which, in turn, is provided with a drain. In the same way these tanks may be connected to a common inlet feed for the liquid ammonia and may be provided with liquid level gauges. In the form shown in Figure 5, the tank 118 instead of being adapted to receive liquid ammonia, is provided with a plurality of pipes 120 which are perforated at 122 so as to discharge the developing gas through the slots 124 in the tank walls.

My invention also comprises an automatic means for keeping the traveling blanket 36 in registration with the walls of the tank and about the guide rolls so that the blanket will not tend to run off the tank and will not cause the paper to become wrinkled or torn and so as to keep the machine automatically working in perfect order all the time. In the present instance this mechanism for adjusting the registration of the paper to accord with the side edges of the tank is accomplished by means of a device which is actuated by the blanket as it travels along and which, in turn, serves to correct the out-of-alignment condition of the blanket. In the form of mechanism for accomplishing this there are provided two crank arms 126 pivotally mounted as at 128 on suitable brackets 130 within the developing chamber. These arms 126 carry the opposite ends of the shaft 64 on which is mounted the guide roll 62 over which the blanket 36 travels. In addition, each arm 126 is provided with a lateral extension 132 which has pivotally mounted at its tip, as at 134, a downwardly depending link 136, the lower end of which link is connected at 138 to a cross-bar 140. In addition the supports 130 are provided with upper supports 142 spaced apart and lying at each end of the machine which supports carry transversely of the machine parallel spaced apart rods 144 and 146 held in place by means of suitable nuts 148. These rods form a track-way for a carriage consisting of a C-shaped angle-iron 150 which carries a shaft 152 on the extremities of which are mounted two rollers 154 and 156 having V-shaped notches 158 for receiving the rods 144 and 146 whereby such carriages may roll along the rods. In addition the C-shaped angle-iron 150 carries at its opposite ends two upstanding webs 160 and 162 having upper grooves formed by suitably bending the web as at 164 and 166. These bent portions include spaced apart folded flanges to receive therebetween the marginal edges of the traveling belt which belt, as it feeds along, passes freely into these folded over tongues 164 and 166. The rod 146 is provided with two depending arms 168 and 170 which arms have upper bifurcated ends 172 forming clamps to hold these arms rigidly on the rod 146. These arms 168 and 170 have pivoted to their lower ends as at 172, horizontally extending pivotal arms 174 and 176 the outer free ends of which carry depending screws 178 and 180 having heads resting on the upper spaced apart ends of the cross rod 140 and between two side plates 182 and 184 which side plates are held on by any suitable fastening means 186. These rods 174 and 176 are preferably round at their outer ends so as to provide tracks and are flat at their pivotal points 172 so as to pass rotatably between the forked lower ends of the depending arms 168 and 170. A second carriage 188 carries at its outer ends rollers 190 and 192 which roll along the roll tracks 174 and 176 and this is accomplished by means of an upstanding arm 194 fastened to the cross-bar 188 and slotted at its upper

end as at 196 to engage a pin 198 on the channelled beam 150. In addition, at the center of the horizontal bar 188 there is mounted, as at 200, the depending weight 202 which is connected therewith by means of the hook 204. By reason of the foregoing construction it will be seen that the weight 202 is constantly pulling downwardly from the very central portion of the bar 188 and which bar by means of the rollers 190 and 192, normally rests centrally on the belt on the two tracks 174 and 176. When the traveling blanket moves either to the right or to the left, the corresponding hook-shaped weight 164 or 166 is moved to the right or to the left and which, in turn, through the slot and pin connection 196 and 198, moves the arm 194 to the right or to the left whereby to carry the weight arm correspondingly. This weight arm in turn rolls the rollers 190 and 192 along the pivoted tracks 174 and 176 so that the weight will be thrown off center and will serve to tilt whichever arm 178 or 180 is actuated by the rotation of the roller along the track. For instance, if the web 164 is moved to the left as shown in Figure 2, this will shift the carriage bar 150 which will shift the depending arm 194 to the left which will in turn cause the rollers 190 and 192 to move to the left thereby causing the weight 202 to pull down more closely to the opposite track point 172 at the left and to cause the roller 192 to move directly over the abutment 180 at the right. This action will cause the central arm 140 to be depressed at the left hand side which in turn will pull down the left hand rod 176 and actuate the finger 132 at that end to shift that end of the shaft 64 outwardly to tighten the belt at that side which will cause the belt to move over slightly to correct the looseness and cause the belt to properly align itself. Obviously, the reverse action is true when the belt runs to the other side and engages the other depending arm 162. It must be apparent that I may use various means for effecting this compensation and alignment of the blanket feed and the re-active guide surface on the tank and, therefore, I do not limit myself to the exact form of means for carrying out this automatic feature of my device. It is important however, that the blanket itself be the traveling member which serves to correct its own inaccuracies through the automatic mechanism disclosed.

It will thus be seen that in the present embodiment of my invention I have provided a very compact type of developing machine wherein a relatively small cabinet may be used due to the fact that I have utilized the tank containing the liquid ammonia as one of the feeding members, that is, I have utilized the re-active surface of the tank itself as a means over which the blanket travels during the feeding movement and which surface is made relatively smooth and foraminated so that the surface of the blanket, as it travels over the relatively smooth walls of the tank, will grip the sheets or continuous strips of light sensitive material and drag them there-over while subjecting them to the action of the developing gases passing through the slots or foraminations in the upper tank walls. In addition, by the arrangement of the traveling cords or foraminated belts in the ventilating chamber so as to receive the discharge from the blanket feed, I am enabled to pass the developed sheets or strip of light sensitive material through the ventilating chamber while subjecting it to the action of a column of traveling air which serves to remove the occluded gases and to finally discharge the light sensitive material at the front and exterior of the cabinet.

It will also be seen that by reason of my automatic registering mechanism, the blanket will continuously travel in registered relation with the tank walls and will not run out of alignment. In addition, by means of my automatic arrangement I am enabled to utilize a single motor for driving both the blanket feed in the developing chamber and the blanket feed in the ventilating chamber.

It is thought that the invention and numerous of its attendant advantages will be understood from the foregoing description and it is obvious that numerous changes may be made in the form, construction and arrangement of the various parts without departing from the spirit or scope or sacrificing any of its attendant advantages, the form hereinbefore described being a preferred embodiment for the purpose of illustrating my invention.

I do not claim herein any of the subject matter described and claimed in my co-pending applications Serial No. 248,745, Serial No. 253,558, Serial No. 287,139 and Serial No. 282,792.

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

1. In a developing apparatus, the combination of an enclosing cabinet, a tank containing a liquid developing medium from which developing gases are given off, said tank having a relatively rigid foraminated portion forming a smooth outer wall to provide a re-active feeding surface, a plurality of guides, a continuous travelling carrier supported on said guides and arranged to drag across said surface, means for feeding light sensitive material between said surface and said carrier whereby to feed the same across the openings so as to develop said material and means to shift one of the guides to tension the carrier against said reactive surface.

2. In a device of the class described, the

combination of an enclosing casing, a tank therein containing liquid ammonia and having its upper portion provided with a plurality of openings to permit the ammonia gases to rise therethrough, a continuous blanket in said casing, a plurality of guide members therein over which said blanket passes, said blanket passing across that portion of the tank which is provided with gas passages, means to yieldingly press the blanket against the tank and means for feeding light sensitive material into position so as to be engaged by said blanket to be carried between said blanket and the surface of said tank having said gas passages therein in order to develop said light sensitive material.

3. In a device of the class described, the combination of an enclosing casing forming a developing chamber, a tank in said chamber for liquid ammonia and having smooth outer walls, the upper wall of which is provided with gas apertures through which gas from the liquid ammonia in the tank may pass, a plurality of feed rollers in said developing chamber disposed about the tank and adjacent the walls thereof, a continuous blanket passing around said guide rolls in a continuous manner and adapted to drag across the walls of said tank and particularly across the wall provided with the gas openings, said casing having an opening and deflecting means for feeding light sensitive material therethrough and between the blanket and the wall of said tank whereby said material is dragged across the wall of said tank and across said gas openings and developed.

4. In a device of the class described, the combination of an enclosing casing, a sheet metal tank disposed therein and adapted to receive an ammonia developing medium, said tank having a lower curved wall smooth on the exterior and an upper curved wall smooth on its exterior, said upper and lower walls converging to form a substantially curved nose and the upper wall being provided with a plurality of openings for the passage of gas therethrough, a feed blanket disposed in said developing chamber, a plurality of guide rolls therein, said blanket being constructed and arranged to pass over said guide rolls and into contact with the lower wall and nose and upper wall of said tank and means for introducing light sensitive material between said blanket and the lower wall of said tank whereby, when said blanket is caused to travel, the light sensitive material will be dragged over the relatively smooth tank walls and will be developed by the action of the gases.

5. In a developing apparatus, the combination of an enclosing chamber, a sheet metal tank therein having smooth curved exterior walls forming re-active feeding surfaces, a blanket adapted to drag across said walls, the upper of said walls having openings for the passage of gas therethrough and means for creating an atmosphere of a chemically active developing gas in said tank.

6. In a device of the class described, the combination of an enclosing casing, a re-active feeding surface therein, a plurality of guide rolls in said casing, a continuous blanket passing over said guide rolls and into contact with said re-active feed surface and adapted to drag across the surface, means to move the blanket whereby to convey light sensitive material across the feed surface, means to expose the light sensitive material to a chemically active gas as it is dragged across the surface and means controlled by the movement of said blanket for automatically keeping the blanket in registration with the re-active feed surface.

7. In a device of the class described, the combination of an enclosing casing, a re-active feeding surface therein, a blanket extending across said reactive surface, means to shift said blanket, means for introducing light sensitive material between said blanket and said surface, means for subjecting the material to the action of gases as it travels there-over and means actuated by the lateral movement of said blanket during its longitudinal travel for correcting such lateral travel of the blanket.

8. In a device of the class described, the combination of an enclosing casing, a re-active feeding surface provided with a plurality of openings for the passage of a developing gas therethrough, said feed surface being of predetermined width to provide a feeding track of prescribed width, a carrier adapted to draggingly travel across said re-active surface and means actuated by the movement of said carrier out of its true path for returning the carrier to its true path of travel.

9. In a device of the class described, the combination of an enclosing casing, means forming a re-active feed surface therein provided with a plurality of openings for the passage of a developing gas therethrough, a feed carrier adapted to draggingly pass across said feed surface in contact therewith, fingers adapted to be engaged by the marginal edges of said carrier as it travels along, said fingers being constructed and arranged to be shifted when the carrier moves laterally out of its true path of travel and an automatic mechanism actuated by the lateral movement of either of said fingers for shifting the carrier to correct its path of travel.

10. A tank adapted to contain liquid developing ammonia, said tank having curved walls which are smooth on their exteriors to provide a re-active feeding surface, a portion of said walls being provided with openings for the passage of gases therethrough arising from the liquid ammonia and a blanket overlying the perforated portion of

the wall and means for moving the blanket across the walls.

11. In a device of the class described, the combination of a support, means forming a re-active feed surface on said support, said feed surface being provided with perforations for the passage of developing gas therethrough, two bell-crank levers mounted on said support adjacent opposite sides of said re-active feed surface, a shaft pivotally mounted on one arm of said bell-crank levers, a feed roller mounted on said shaft, additional feed rollers and a continuous blanket passing over said feed rollers and about said re-active feed surface, links connected to the opposite arms of said bell-crank levers, transversely disposed tracks on said support, a carriage adapted to roll along said tracks, said carriage having upstanding fingers having flanged portions engaging the marginal edges of the blanket, depending arms carried by said tracks, said arms having pivotally mounted thereon horizontally disposed second tracks, said depending arms and second tracks being mounted in spaced apart relation substantially under said webs engaging the marginal edges of the blanket and a horizontal bar having rollers at its extremities rolling on said second track and a second horizontal bar, said second horizontal bar being rigidly connected to the depending links and said second horizontal bar having upstanding supports for the free ends of said second tracks and a weight depending from the central portion of said first horizontal bar.

12. A gas developing apparatus of the character described comprising means forming a container for a gaseous developing medium, a movable substantially gas-tight cover for said container constructed and arranged to advance material therebetween and over said container, and means for shifting said cover.

13. A gas developing apparatus of the character described comprising a tank adapted to contain a quantity of developing gas and means for conveying the light sensitive material over said tank to bring the same into the zone of action of the developing gas, said means forming a movable substantially gas-tight cover for said tank.

14. A gas developing apparatus of the character described comprising a tank adapted to hold a quantity of developing gas, and means cooperating with said tank for feeding light sensitive material thereacross and within the zone of action of the gas, said means preventing the escape of the gas through the perforations.

15. In a device of the class described, the combination of a tank having an opening and adapted to hold a quantity of developing gas, and means for feeding light sensitive material across the opening of said tank, said means including a belt forming a closure for the opening of said tank to prevent the escape of gas therefrom.

16. In a device of the class described, the combination of a tank adapted to contain a quantity of developing gas, and movable means associated with said tank adapted to convey light sensitive material thereacross, said means being constructed and arranged to cooperate with said tank to prevent the escape of gas therefrom.

17. In a developing apparatus for developing light sensitive material by the action of a chemically active gaseous medium, the combination of means forming a perforate feeding surface and means forming a source of gaseous medium adapted to communicate with the perforations of said surface, a movable feeding member adapted to overlie and drag across said perforate surface for the purpose of transporting light sensitive material across said surface, and means for shifting said movable feeding member, said member being constructed and arranged at all times to overlie and prevent the escape of gas through the perforations of said feeding surface.

18. The combination of a perforated plate forming a relatively rigid feeding surface, a source of gaseous developing medium communicating with the perforations in said plate, and an endless belt adapted to overlie said plate and to cover the perforations thereof, said belt and plate being constructed and arranged to permit the insertion of light sensitive material between the belt and plate, and means for moving the belt to drag the material whereby said material is developed by the action of the gaseous medium passing through said perforations.

19. A developing apparatus for developing chemically active light sensitive material by the action of chemically active gaseous developing medium including means forming an enclosing cabinet having an infeed opening, a relatively rigid perforate plate disposed adjacent said opening, an endless blanket disposed adjacent said plate and arranged to contact with and drag over the top of said plate, said plate and blanket being constructed and arranged to permit the insertion therebetween of light sensitive material inserted through said infeed opening, a source of chemically active gas communicating with the apertures in said plate, and means in said cabinet forming an airing chamber communicating with the discharge end of said blanket and plate, and a suction exhaust connected with the airing chamber for removing occluded gases.

20. In a device of the class described, the combination of an enclosing cabinet having two openings in the walls thereof, one of said openings constituting the infeed and the other opening constituting the discharge, a

substantially rigid perforated plate disposed adjacent the infeed opening and an endless blanket disposed to contact with and drag over the surface of said plate, a source of gaseous developing medium communicating with the perforations of said plate and disposed in said cabinet, said blanket and plate being arranged to permit the insertion therebetween of light sensitive material fed in through said infeed opening.

21. In a developing apparatus, the combination of an enclosing cabinet having an inlet and a discharge opening, a tank disposed in said cabinet and adapted to contain liquid developing medium, said tank having perforated walls providing relatively smooth reactive feeding surfaces, and a traveling carrier adapted to be fed across said surfaces, means for feeding said carrier, and means for introducing light sensitive material between said tank surfaces and the carrier.

22. In a developing apparatus, the combination of an enclosing cabinet, a stationary feeding element forming a relatively smooth reactive surface, a traveling feeding element, adapted to travel across said relatively smooth surface in contact therewith, means for introducing light sensitive material between said traveling feeding element and the smooth surface, said stationary feeding element comprising a tank holding a quantity of a suitable developing medium and having perforated walls to permit the developing gas arising from said developing medium to have access to the light sensitive material as it is carried across the reactive surface by the carrier.

23. In a developing apparatus, the combination of an enclosing cabinet, a tank having the lower portion provided with imperforate walls adapted to hold the quantity of developing liquid and having upper walls provided with perforations to permit the passage of gas therethrough, the outer walls of said tank being relatively smooth to provide a continuous stationary feeding surface, the upper portion of said perforated wall being provided with an integral lip forming a deflecting flange.

24. In a device of the class described, the combination of an enclosing cabinet, a sheet metal tank disposed therein, guide rolls in said cabinet, and associated with said tank, a traveling carrier passing over said rolls and into contact with the exterior walls of said tank, means for feeding said carrier, said tank carrying a sheet metal flange associated with one of said feed rolls to provide a deflecting lip for the light sensitive material whereby said light sensitive material may be fed into position between said tank and the carrier.

25. In a developing apparatus, the combination of a support, a container having a perforate surface and adapted to contain a developing gas, and means for conveying light sensitive material across said perforate surface and into the zone of action of the gas, said means including an endless conveyor extending across the perforate surface and in contact therewith, and means for moving said conveyor across the perforate surface.

26. In a device of the class described, the combination of a support, a container having a perforate surface mounted in the support, a means creating a quantity of ammonia gas in the container, and means for conveying light sensitive material across said perforate surface so as to expose the same to the action of said gas, said means including an endless conveyor moving across the perforate surface in contact therewith.

27. In a developing apparatus, the combination of a support, a container for a developing medium mounted in said support, said container having a perforated wall forming a reactive surface and means including an endless conveyor passing across said reactive surface whereby light sensitive material may be dragged there-across into the zone of the perforated portion.

28. An apparatus for developing light sensitive material by means of a gaseous developer, comprising in combination, a smooth plate having a perforated portion of curved cross section, spaced feeding rollers in said apparatus adjacent said perforated plate, an endless substantially gas tight conveying blanket carried by said feeding rollers and contacting with said perforated plate to feed light sensitive material therebetween, said conveying blanket projecting on all sides beyond the perforated portion of the plate to form a substantially gas tight closure therewith and a chamber for containing ammonia gas arranged beneath said perforated plate to develop the light sensitive material as it is fed across said perforated plate.

In witness whereof, I have hereunto subscribed my name.

ADOLPH LANGSNER