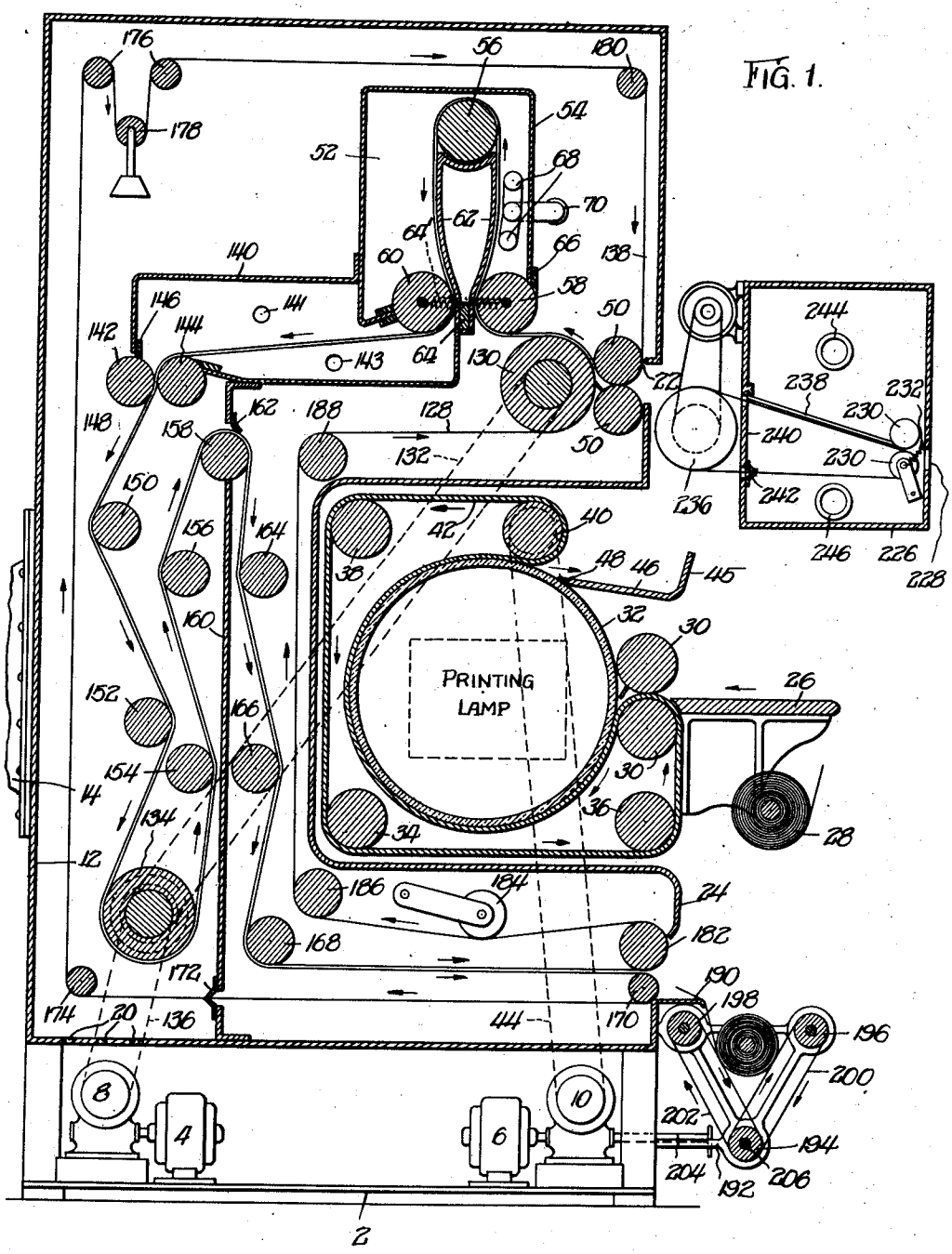
Aug. 25, 1931. A. LANGSNER 1,820,280

DEVELOPING APPARATUS

Filed Sept. 12, 1928 2 Sheets-Sheet 1

FIG. 1.



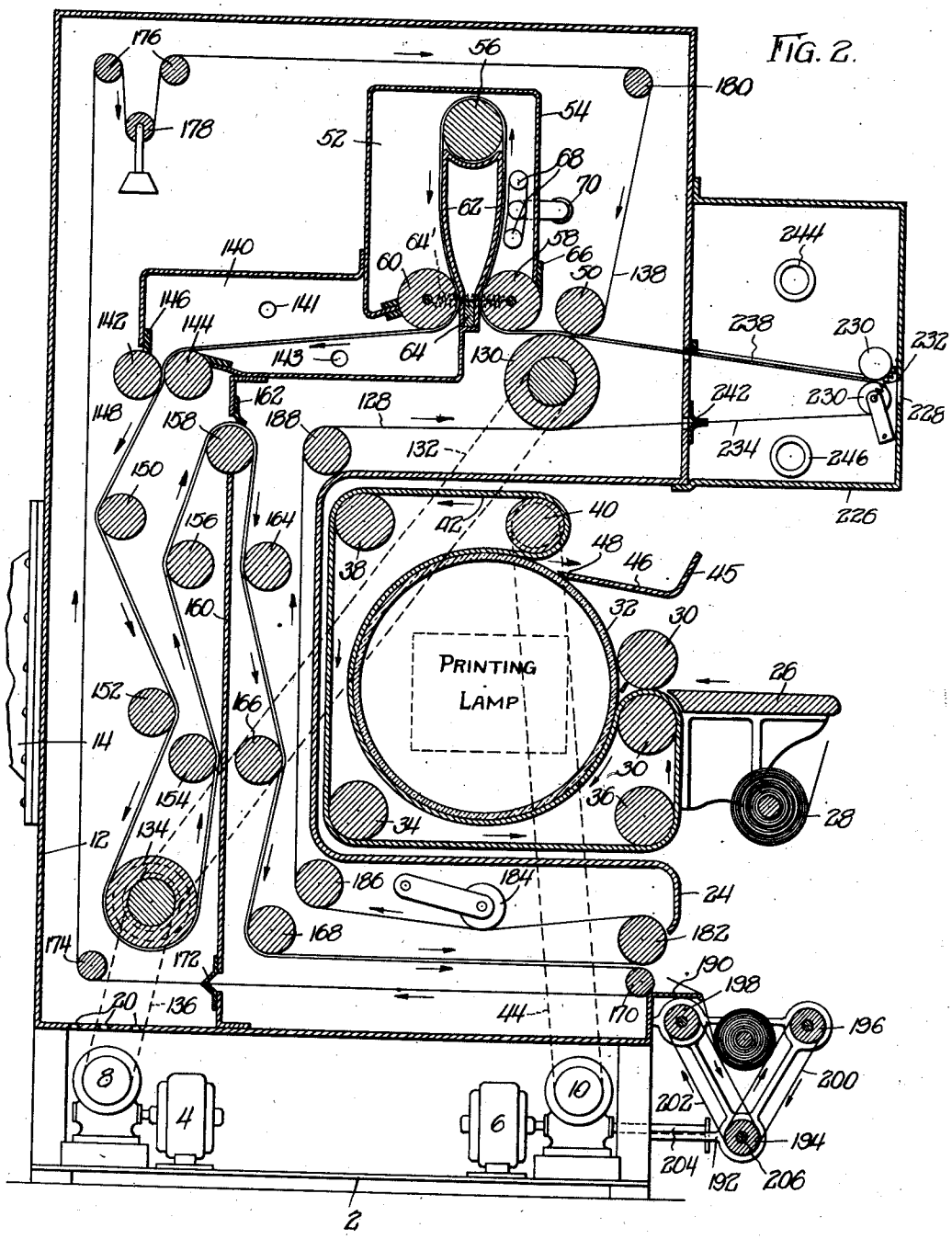
INVENTOR:
ADOLPH LANGSNER,
BY Sheeren & Coy ATTYS.

Aug. 25, 1931. A. LANGSNER 1,820,280

DEVELOPING APPARATUS

Filed Sept. 12, 1928 2 Sheets-Sheet 2

FIG. 2.



INVENTOR:
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Patented Aug. 25, 1931 1,820,280

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 September 12, 1928. Serial No. 305,591.

This invention relates to a method and apparatus for developing sheets of light sensitive material by the action of a gaseous developing medium.

One of the objects of my present invention is to provide a method and developing apparatus for developing light sensitive material wherein the developing material is subjected to the action of water vapor or the like for bringing about the development of the material.

Still another object of my invention resides in preliminarily subjecting the light sensitive material to the action of water vapor or steam and then subjecting this preliminarily moistened material to the action of a developing gas such for instance as ammonia gas.

Another object of my invention resides in providing an apparatus wherein the light sensitive material as it is fed along either in sheet form or continuous strips, is passed through an isolated chamber containing a quantity of water vapor or steam for the development of the light sensitive material or alternatively is passed subsequently thereafter through the developing chamber containing ammonia gas and the like. In this latter case, the preliminary treatment with water vapor serves to accelerate and intensify the developing effect brought about by the gaseous developing medium.

Another object of my invention is to provide a developing apparatus consisting of an enclosing chamber wherein is located a feeding means for feeding light sensitive material continuously through the chamber and in which chamber is located a source of water vapor for subjecting the light sensitive material to the action of the water vapor during its passage therethrough whereby to develop the same.

Still another object of my invention resides in providing a developing apparatus consisting of two successive chambers, one containing a source of developing gas such as ammonia gas and the other containing a source of water vapor together with means for feeding light sensitive material first through the chamber containing the water vapor and thence through the chamber containing the developing gas, during which operation the developing material is first slightly moistened by the water vapor which expedites or accelerates the developing action of the subsequent developing medium, for instance such as ammonia gas.

Still another object of my invention resides in providing a unitary machine wherein the developing chamber containing the ammonia gas is provided with a preliminary water vapor chamber and means is provided for feeding light sensitive material through the water vapor chamber and thence through the ammonia chamber and wherein the feeding means is driven from a common source of power and wherein a portion of the feeding means of the ammonia chamber comprises also a portion of the feeding means of the water vapor chamber.

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:

Figure 1 is a view of the structure as disclosed in Figures 1 and 9 of the parent application aforesaid, and

Figure 2 is a more compactly and conveniently arranged structure for accomplishing the same end.

It will, of course, be appreciated that certain figures of the drawings in the parent application above mentioned have not been shown in the present application for purposes of conciseness. However, the present illustration is determined amply sufficient for an understanding of the invention.

In my parent application and in the present application I have illustrated the developing portions of my complete apparatus as utilized in connection with a printing machine. It will, of course be understood that the developing features of my apparatus are equally adaptable to a device wherein the printing is done by a separate machine and the printed paper fed to the developing apparatus. It will be understood that the present apparatus is adapted for the development of light sensitive material adapted

to be acted upon by a gaseous developing medium such as ammonia gas, water vapor, steam or any other type of developing material in a gaseous form.

In the machine illustrated in the drawings, it is shown as comprised of a base 2 on which are mounted two motors 4 and 6 and driving pulleys 8 and 10. In addition, the base comprises the main cabinet or housing 12 in which the printing, developing, airing and humidifying chambers are arranged, and in which the traveling belts or feeding devices and driving devices are arranged. This outer casing 12 is provided with a series of hoods 14 terminating in bus pipes 16 connecting with a main pipe 18, which in turn is connected to a source of suction, such as a suction fan (not shown), so that when the fan is in operation any developing gases or currents of air are drawn through this outer casing. The bottom of the casing is provided with a series of air inlets 20 for this purpose and the front part of the casing adjacent certain of the feed rolls is also spaced therefrom as at 22, to permit the inlet of atmospheric air and its passage through the airing compartment as will be hereinafter described. The location of the ventilating holes 20 in the bottom of the casing is clearly shown in Fig. 2 of the drawings extending along the length of the casing. The front part of the casing is open and is provided with a partition or wall 24 to form a re-entrant chamber in which the printing mechanism proper is located. In addition the front part of the casing is provided with a bracket or ledge 26 on which is mounted a roll 28 of light sensitive material, such, for instance, as paper, so that the paper can be fed from the roll over the ledge 26 and between the feed rolls 30 and 32. Adjacent these rolls and within the printing compartment formed by the partition 24, I place a transparent form provided with arcuate walls. In the present instance this transparent printing wall is shown as a glass cylinder 32. It is of course evident that the particular shape of this glass cylinder is immaterial since its function is to permit the feeding and guiding of the paper around its surfaces so that the printing lamp may pass through rays of light from the arc *xxx* lamp or other printing light may pass through the transparent wall and print through the negative and onto the light sensitive side of the paper. Obviously instead of using a cylinder, this wall may be elliptical in shape or may be continuous, provided that portion of the wall around which the paper is fed is formed in a manner to accomplish that function. The construction of the arc *xxx* lamp and the manner of mounting it within the cylinder or other surface 32 is more fully illustrated, described and claimed in a co-pending application filed by me, the same being designated as Case No. 43.

In order to feed not only the printing negative but the sheets or the continuous roll 28 of light sensitive material around this transparent wall 32, I preferably provide a traveling belt of continuous construction. To this end I provide within the printing compartment a series of spaced-apart guide rollers 34, 36, 38 and 40 which in connection with the lower rolls 30 serve to guide the belt 42 in a continuous manner as shown by the arrows in Fig. 1 around the cylinder 32 for substantially the greater part of its periphery, and thence away therefrom at the top rearwardly over the roller 40, thence rearwardly of the compartment over the roller 38, thence downwardly over the roller 44, thence forwardly to the roller 48 and downwardly again over the roller 30. The upper roller 40 is driven by means of a belt 44 from the motor 10. Adjacent the upper roller 30 I provide a deflector 46 so that the paper fed from the ledge 26 into contact with the traveling belt 42 and the upper roller 30 will be deflected downwardly so as to pass around the glass cylinder, and will thence be carried up and outwardly and at the point shown by the arrow. The receiver 47 provides a trough for receiving the negatives. The front part 48 of this trough is preferably formed as a knife-edge wiping over the front of the glass cylinder so as to strip or prevent the negative from following the cylinder. The belt 42 may be of any desired construction. I prefer to use a belt extending the complete width of the cylinder 32, but this belt may consist of a plurality of belts spaced along the length of the machine.

It will thus be seen that this printing unit is arranged in a very convenient position at the front of the machine and is substantially isolated from the remainder of the apparatus within the main cabinet 12 as by means of the partition 24, and that the belt or blanket 42, which is made of cotton or rubberized cotton and which does not absorb any great amount of ammonia, has its own driving motor 10.

The driving motor 10 feeds the paper and print into and around the printing cylinder so that when the strip of paper to be printed is passed from the roll 28 across the ledge 26 and between the rolls 30 so as to be grabbed by the traveling belt 42, the paper with its sensitized side facing the glass cylinder and the negative between the cylinder and this paper, will be fed around the cylinder in a clockwise direction and during the travel the paper will be printed. The print will be ejected into the trough 46, the knife edge 48 functioning to prevent the print from adhering to the roll 32.

In the present instance I have provided means for developing the light sensitive ma-

terial or paper that comes from the printing machine. This development is accomplished in the present instance by slightly dampening or moistening the light sensitive material during its feeding movement which moistening effect may either by itself accomplish the developing of the light sensitive paper or in conjunction with the action of further developing gas such as ammonia gas, for accomplishing the developing action. In one of the aspects of my invention, I have illustrated the developing action as taking place by the joint action of a moistening operation and a subsequent gas treating operation as for instance by the action of ammonia gas which is greatly accelerated by the preliminary moistening treatment. In the invention shown in the drawings, the printed paper or other material would be carried outwardly from the trough 45 and grasped by the hand of the operator and delivered into the opening of a vapor chamber which is adapted slightly to moisten the paper for the purpose of either developing the same or accelerating the action of the subsequent developing gas. It will be apparent that any suitable material may be arranged if desired to automatically divert the printed strip forwardly and in a position to be fed into the moistening chamber so as to be operated upon by the feeding mechanism therein.

In Figure 1 of the drawings, the humidifying chamber or vapor chamber is shown as consisting of an enclosing cabinet 226 forming an enclosing chamber and provided with an opening 228 into which the paper or light sensitive material to be developed or that movement from the printing cylinder is inserted between two rolls 230 therein, the one being directly above the other and pressed together by means of a suitable spring 232. The lower roll has a belt preferably composed of a series of spaced apart cords which belt passes over the lower roll and connects with an additional roll 236 which may be slightly larger and which is located on the outside or discharge portion of the casing 226. This latter belt works against a substantially rigid backing member 228 within the cabinet and extends from the roll 230 to the opposite wall 240 of the humidifying compartment so that the upper strand of the belt feeds or drags the paper along by pressing against this former or backing member 228. The rolls 230 are arranged and constructed to prevent the escapement of the water vapor within the compartment and the discharge wall 240 of the compartment is provided with strips of felt or rubber 242 for a similar purpose. This chamber is provided with a vapor inlet pipe 244 and the vapor discharge pipe 246. In the construction shown in Figure 1, the sheets of light sensitive material are passed from this humidifying chamber into position between the two guide rolls 50 and thence are passed around the main feed roll 130 and thence into the developing chamber. I prefer to drive the roll 236 by means of its own prime mover not illustrated. Obviously any driving means for this roll 236 may be provided as for roll 134, if desired.

In Figure 2 of the drawings, a slightly more compactly constructed device is provided wherein the humidifying chamber is built on as a part of the entire apparatus and wherein the roll 130 of the main machine is combined with the roll 236 of the humidifying chamber to form a single feeding means operated by the motor 8 so that light sensitive material fed through the opening 228 is fed by the belt 234 directly through the humidifying chamber and into position between the roll 130 and one of the rolls 50, the other roll 50 having been eliminated to provide for the compacted structure. In this connection, it will be appreciated that the backing member 238 has been continued outside of the humidifying chamber proper to an extent up to the upper roll 50 so that the feed is continuous from the humidifying chamber through the same and up to the roll 130 of Figure 2. which is a combination of rolls 130 and 236 of the structure shown in Figure 1.

After passing through the humidifying chamber and around the roll 130 of the developing apparatus the light sensitive material passes into another developing chamber as in such instance where the vapor is used in conjunction with a subsequent treatment by ammonia gas or developing medium. This developing chamber 52 is formed by means of a partition 54 disposed within the upper portion of the main cabinet 12.

This partition 54 extends parallel with the cylinder 32 and is preferably co-extensive with the width thereof so that the entire width of the sensitive strip may be fed in a continuous manner through this developing chamber. Means are provided therein for feeding the printed paper continuously therethrough, and the present form of such means comprises an upper guide roll or turning member 56 and two lower guides 58 and 60, preferably in the form of rollers. In addition between these rollers I provide a hollow guide 62 (preferably of sheet metal) which provides a smooth surface and gradually comes to a point between the two rollers 58 and 60, providing a solid partition member therebetween against which the rolls 58 and 60 are resiliently drawn by means of a spring 54, the tension of which may be varied so as to pull these rolls with varying degrees of strength. The rolls 56, 58 and 60 are adapted to have traveling belts pass therearound for the purpose of feeding the printed paper into and out of the developing chamber 52, while at the same time that part of the partition which lies adjacent the rolls 58 and 60 is provided with a yieldable gasket

or packing 66 and is adapted resiliently and yieldingly to wipe into engagement with the surface of these rolls 58 and 60 whereby to prevent the escape of the developing gas at such point, while permitting the free rotation of these rolls during the travel of the belts and the paper to be developed.

Within the chamber I provide a series of longitudinally extending pipes 68 which lead to a common bus 70 which in turn is provided with means for introducing ammonia gas or other developing medium into the developing chamber. The details of this construction are fully shown and described in my parent application.

Separate means is provided for carrying the developed sheets or continuous roll of paper through the developing chamber and thence through the subsequent chambers in the main cabinet and in the present form of my feed mechanism I prefer to use two continuous belts which pass over a series of guide rolls or rollers and one of which rollers in each series is driven from the separate motor 8. These belts are preferably formed in the manner shown in Figs. 4, 5 and 6 of the drawings. In Figs. 4 and 5 I provide a series of these belts extending across the breadth of the rolls and these belts 122 are relatively narrow and formed of non-stretchable fabric or other material, and may, if desired, run in spaced-apart grooves extending along the length of the rollers so that the belts are always maintained in special spaced-apart relation. The belts shown in Figs. 4 and 5 are provided along their length with rubber inserts 124 which provide paper-gripping fingers or studs. In lieu of the plurality of separately spaced belts I may use and prefer to use, a single width belt 126 shown in Fig. 6 of the drawings, which belt is composed of criss-cross strips or members of non-stretchable or foraminated mesh-like material to admit the free passage of the developing gases therethrough. The openings between the crossed portions of the belt are relatively large as compared with the total area of the belt so that while preventing a relatively large gripping area to the paper for feeding it along, the free action of the gases in passing therethrough is not interfered with.

If desired, instead of using belts I may use a plurality of cords which run in grooves in the rolls and which cords are spaced apart the width of the rollers.

Referring now to the preferred arrangement of these belts, it will be seen that I provide a series of two of such continuous belts. The first belt 128 shown in Fig. 1 passes about a relatively large feed roll 130 driven by means of a drive belt 132 from the lower roll 134, and the latter in turn being driven by means of a belt 136 from the pulley 8 driven by the motor 4. The belt 128 after passing over said drive wheel 130 passes onto and around the guide wheel 58 at the entrance of the mouth of the developing chamber, passing between this wheel 58 and the stationary partition 64, thence between the smooth faces thereof thence along the form 62 where the ammonia gas is projected against the paper. The belt then passes around the upper roll 56, thence down along the opposite side of the form 62 and outwardly through the developing chamber between the guide roll 60 and the opposite side of the stationary anvil 64. Simultaneously therewith another belt 138 passes around the upper guide roll 50, thence into contact with the feed roll 130 where it joins the belt 128 and passes therealong and therewith between rolls and the block 64, around the former 62 and between the former and other roll 60 and thence out of the developing chamber 82 into a second chamber 140. This chamber 140 constitutes a humidifying chamber being provided with water vapor inlet and outlet pipes 141 and 143 whereby to permit the introduction and discharge of suitable water vapor which has a great affinity for ammonia gas. In this manner any occluded gas on the paper passing through this chamber will be taken up by the water vapor. From this chamber the belts pass in unison in substantially contacting relation carrying the paper between them and passing between rolls 142 and 144 at the mouth of the humidifying chamber. Any occluded gases which pass into this chamber are prevented from escaping by means of the yielding gaskets or webs or packings 146 fastened to the partition and which gaskets wipe along the surface of these rolls 142 and 144 and in this manner positively prevent the escape of gas from this secondary chamber 140 while permitting the free passage of the belts 142 and 144.

From this point the two belts pass side by side through an airing chamber 148 in which are located guide rolls 150 and 152 which cause the belts a tortuous path to prolong the airing of the developed paper. The belts then pass along the lower guide and feed roll 134, thence upwardly around another roll 154 and a second roller 156, thence over a third roller 158 mounted in the partition 160 which forms this airing chamber 158. A flexible or yieldable packing 162 wipes the surface of the roll 158 and the belts as they pass thereover so as to prevent the escape of the gases at this point. In addition another packing may be arranged between the bottom portion of the partition 160 and this roller 158. From the roller 158 the two belts pass downwardly around an additional guide roll 164 and around a reversely disposed guide roll 168, thence around another guide roll 168, across the bottom of the cabinet where one of the belts 138 passes around the lower roll 170 disposed at the front of the machine and thence

backwardly through a flexible packing 172 in the partition member 160 so as to wipe the belt free of all occluded gases and to prevent the escape of the air in the airing chamber 148 through this opening; and from this point the belt 136 passes around a roller 174, thence upwardly around guide pulleys 176 and the belt tightener 178, forwardly along the top of the main casing 12 to a roller 180, and thence downwardly to the roller 50.

In the same manner the other belt 128 after passing around the guide roller 128 at the bottom of the machine passes forwardly over a guide roller 182, thence rearwardly of the machine beneath a belt tightener 184, around a guide pulley 186, thence upwardly behind the printing compartment to an upper guide roller 188, thence around the main feed roller 130 to join the other belt 138. In this manner these two belts are carried in continuous procession through the various developing compartments 52, supplemental compartment 140 and airing chamber 148, so that the print paper is introduced between the rolls 150 and is deflected upwardly into position between the two belts as the same pass around the feed roll 130, the separate sheets to be developed or the continuous roll being carried in a continuous manner in the path of travel heretofore described, and during its travel will be developed in the developing chamber 152 by the action of the pure ammonia gases projected from the pipe 68 and thence will be carried into the supplemental chamber 140 and the airing chamber 148 where it will be remembered a current of air is passing through the inlet openings 20 and 22, and out through the suction exhaust so that all developing gas and occluded gases are removed from the papers and from the belts. The developed paper will then be discharged at the front of the machine onto the ledge 190 to the wind-up device. This wind-up device comprises a bracket 192 which extends the width of the machine and preferably is formed of triangularly disposed guide rolls 194, 196 and 198 arranged with the apex roll 194 at the base. Over these rolls pass the belts 200 and 202 and suitable means is provided for driving the belts in the direction indicated. Belts 100 and 102 are driven so that the roll of paper is gradually moved in a counter clockwise direction and is wound up thereon. This wind-up mechanism permits the roll to get larger and larger without the provision of a take-up mechanism since the converging sides of the belts will permit the progressive rise of the gradually enlarging roll as same winds up. Suitable means is provided for driving the lower roll 194 from the shaft 204 of the motor 6. This shaft 204 is provided with a suitable bevel gear which meshes with another gear on the shaft 206 of the roller 194.

Means is provided preferably within the airing chamber 148 for heating the strip of paper as it passes between the belts therethrough. I prefer to utilize the driving and guide roller 134 as the heater. To this end the interior of the roller 134 is provided with an electric heating coil which as the belts with the paper therebetween pass over the roll 134, suitably dries the paper. It will thus be appreciated that in addition to drying the paper as it passes about the guide roller 134 acting as a heater, this heater will also so heat the light sensitive paper as to drive out the occluded ammonia gases. Thus I have provided an improved process and means for accomplishing this function.

It will thus be seen that I have provided a very compact and commercial type of developing apparatus for developing light sensitive material by the action of water vapor or by the combined action of water vapor and gas such as ammonia gas; that I have provided a very compact machine which is adapted to feed printed sheets of light sensitive material in continuous manner through a preliminary moistening chamber where the same are subjected to the action of water vapor and thence through a developing chamber wherein the light sensitive material is subjected to the action of a further developing medium such as ammonia gas and wherein the preliminary moistening operation accelerates the action of the second developing medium such as the ammonia gas. In this connection it will be seen that I have provided a combined structure wherein the various feeding means for the moistening chamber and developing chamber are actuated from a single prime mover and wherein certain portions of the feeding apparatus are made common to the two developing chambers.

It will be apparent that by the use of my improved method and means, I am enabled to more positively feed light sensitive material such as paper through the apparatus without wrinkling the same and without wetting the same during the developing action whereby runs or smears are avoided and whereby crinkling is further avoided. This is due to the fact that the slight moistening effect does not sufficiently wet the paper to cause it to become wet clear through but on the contrary the vapor bath merely slightly wets the surface of the light sensitive material so that when it is put through the subsequent developing chamber containing the ammonia gas or other medium, the light sensitive material is still in a comparatively dry condition. It will of course be understood that the moistening effect when used in the combined developing mediums, accelerates the action of the main developing gas.

I do not herein claim the subject matter of invention set forth and claimed in my co-

pending application, Serial Number 240,157, filed December 15, 1927.

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

1. An apparatus of the character described comprising means forming an enclosing chamber having an inlet and discharge opening, means for creating a moist atmosphere in said chamber and conveying means for said chamber constructed and arranged to receive light sensitive material inserted through the inlet opening and to convey the same through the chamber and discharge the same through the outlet opening of the chamber and a jet for spraying ammonia against the light sensitive material as it is carried along.

2. In a device of the class described, the combination of means forming an enclosing chamber provided with an inlet and an adjacent outlet, a rigid backing member extending into said chamber from between said inlet and outlet, a pair of rolls, one mounted at the inlet and one at the outlet, said rolls being associated with the backing member, a second roll located inside of said chamber at the inner end of the backing member, and a flexible conveying means passing upon the rollers, said belt being constructed and arranged to cooperate with the backing member whereby to receive light sensitive material inserted in the inlet opening and to convey the same through the chamber and discharge the same through the discharge opening, and means forming a chemically active gas in said chamber.

3. A device of the character described, the combination of means forming an enclosing casing having an inlet and discharge slot a pair of rolls disposed in said slot, spring means for normally pulling said rolls together, a backing member extending into said chamber from between said rolls, a third roll disposed inside the chamber and associated with said backing member, a belt passing around the pair of rolls in the slot and around said roll located inside of said chamber, said belt being constructed and arranged to cooperate with said backing member to feed light sensitive material inserted through the slot through said chamber and discharge the same through the slot, and means for driving said belt, and a vapor inlet for said chamber.

4. A device of the class described in combination with a support providing a developing chamber, conveying means passing through said developing chamber and including a relatively large guide roll, means for driving said guide roll, a pair of guide rolls located in front of said main slot, a humidifying chamber disposed adjacent said pair of rolls and including a second relatively large guide roll, means for driving said second large guide roll and conveying means located within said humidifying chamber for conveying light sensitive material inserted thereinto through said chamber and for discharging the same from said humidifying chamber at the point of said second relatively large guide roll and opposite the bight of said first pair of guide rolls, and a source of water vapor for said humidifying chamber.

5. In a device of the class described, the combination of a support forming a developing chamber, conveying means for said developing chamber including traveling belts and guide rolls. one of which is disposed adjacent the infeed of said developing chamber, means for driving said guide roll, a humidifying chamber connected with said support and located adjacent the mouth of said developing chamber, a pair of rolls in said humidifying chamber opposite the infeed slot thereof, a traveling belt passing around one of said rolls and around said power driven guide roll, and means associated with said belt for causing the sheet of light sensitive material inserted into the bight of the pair of rolls for passing the same through the humidifying chamber and thence into the conveying means of said developing chamber in a continuous manner, and a source of water vapor for said humidifying chamber and a source of developing gas for said developing chamber.

6. In a developing apparatus, the combination of a developing cabinet formed by a partition having an opening therein, guide rolls located in said opening, a slot partition between said guide rolls, spring means pressing said rolls toward said partition, traveling belts passing between one of said guide rolls and the partition and into the developing chamber and out between the opposite face of said partition and the other guide roll, means for feeding paper to be developed between said belts whereby to cause the paper to be fed by said belt through said developing chamber, flexible members at the junction of said feed rolls and the partition forming the developing chamber for preventing the escape of the developing gases from said chamber, and means for introducing a developing gas against said paper as it is fed by said belts.

7. In a developing apparatus, the combination of a developing cabinet formed by a partition having an opening therein, guide rolls located in said opening, a slot partition between said guide rolls, springs pressing said rolls toward said partition. traveling belts passing between one of said guide rolls and the partition and into the developing chamber and out between the opposite face of said partition and the other guide roll, means for feeding paper to be developed between said belts whereby to cause the paper to be fed by said belt through said developing chamber, flexible members at the junction of said feed rolls and the partition forming the

developing chamber for preventing the escape of the developing gases from said chamber, means for projecting a developing gas against said paper as it is fed by said belts, and means introducing water vapor in said developing chamber.

8. In a developing apparatus, the combination of means forming a developing chamber, a plurality of rollers located at the mouth of said chamber, a partition disposed between said rollers and means for pressing said rollers resiliently against the intervening partition, means for passing two belts in superimposed relation between one of the rolls and partition through said chamber and out of said chamber between the other of said rolls and partition, said belts being constructed and arranged to carry light sensitive paper therebetween through said chamber, and means for introducing developing gas into said chamber.

In witness whereof, I have hereunto subscribed my name.

ADOLPH LANGSNER.