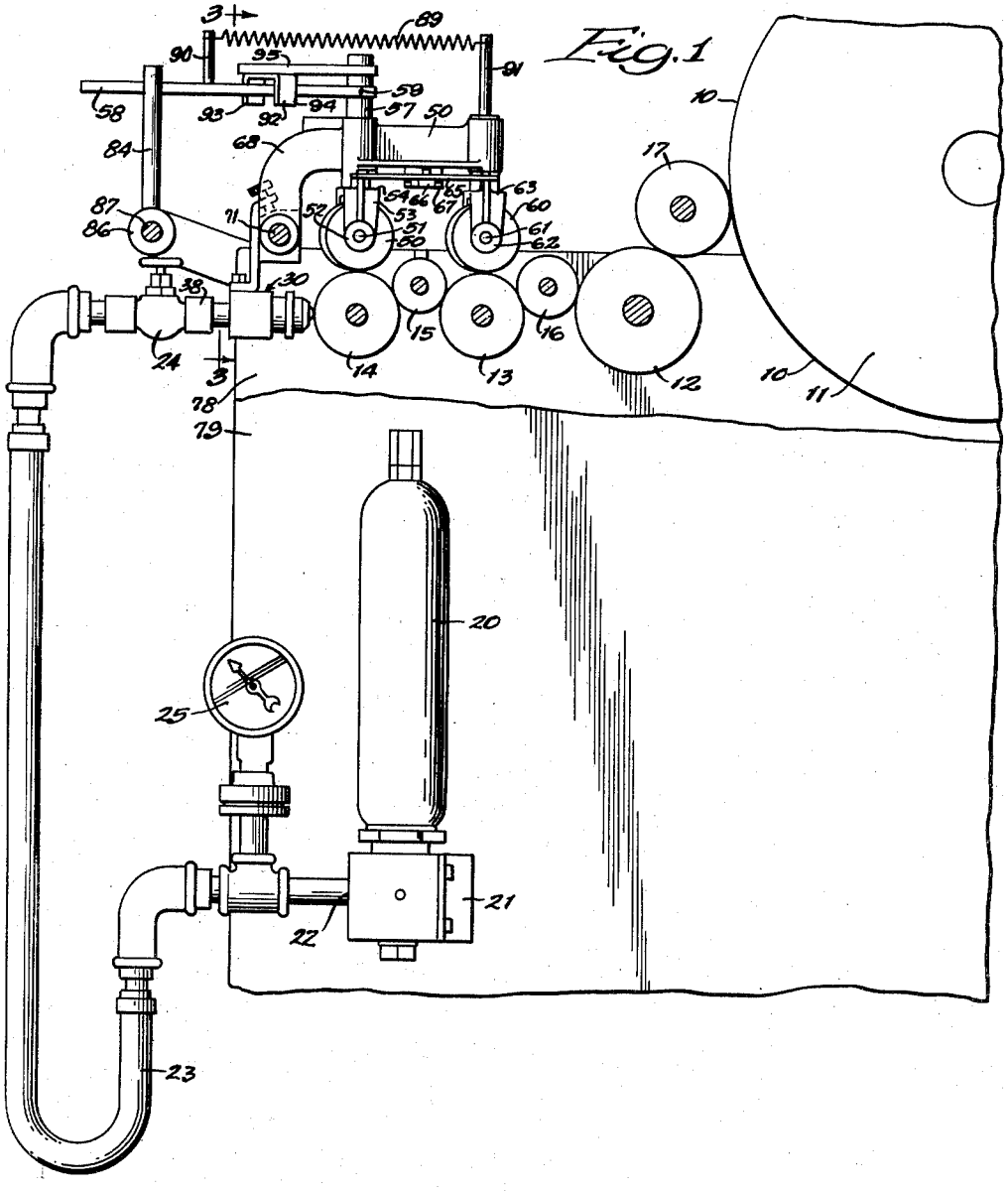
May 3, 1955 C. H. MORHARDT 2,707,434

INK FEED SYSTEM FOR PRINTING MACHINES

Filed May 23, 1952 3 Sheets-Sheet 1

Fig. 1



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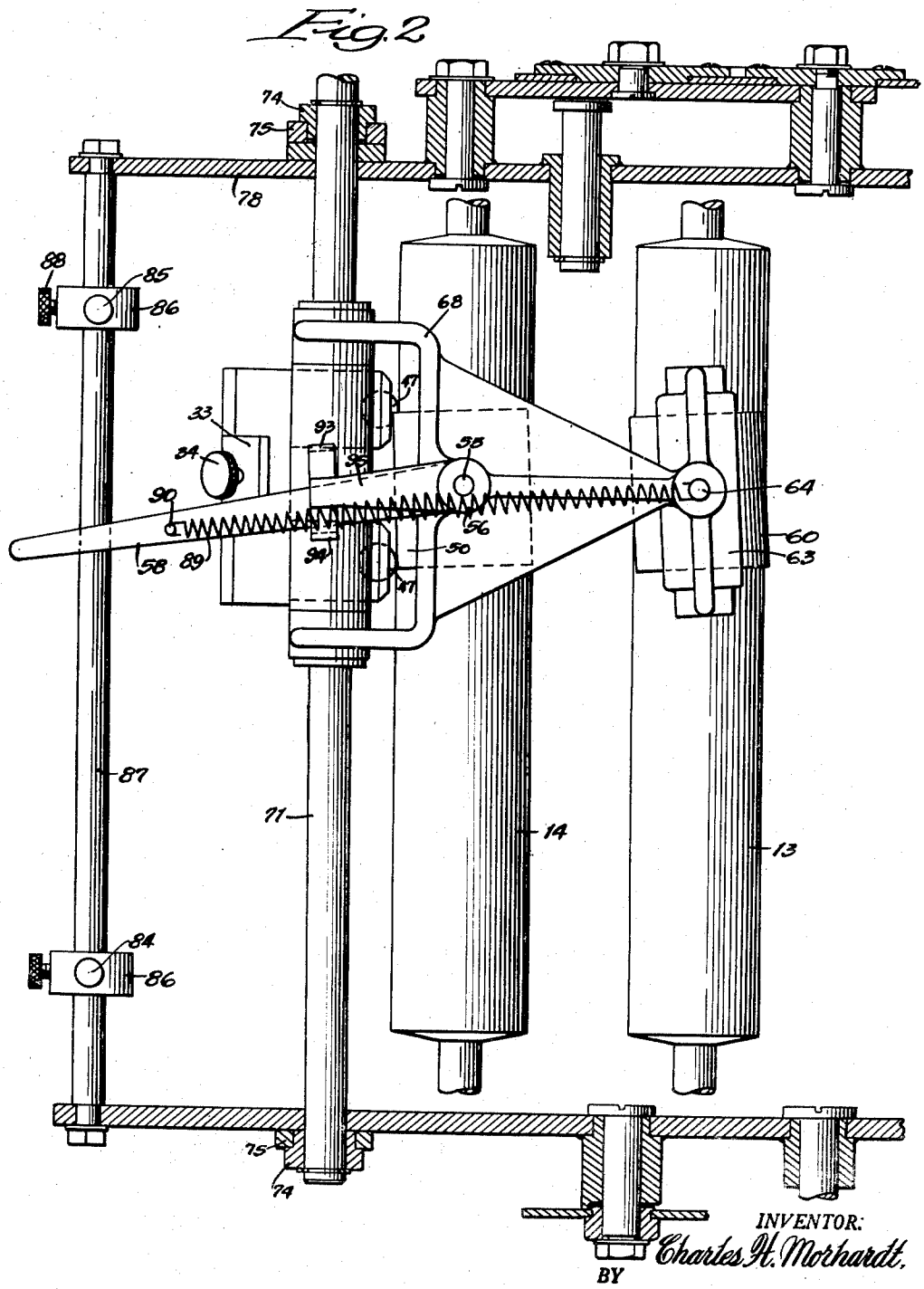
May 3, 1955 C. H. MORHARDT 2,707,434

INK FEED SYSTEM FOR PRINTING MACHINES

Filed May 23, 1952

3 Sheets-Sheet 2

Fig. 2



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May 3, 1955 C. H. MORHARDT 2,707,434

INK FEED SYSTEM FOR PRINTING MACHINES

Filed May 23, 1952

3 Sheets-Sheet 3

Fig. 3

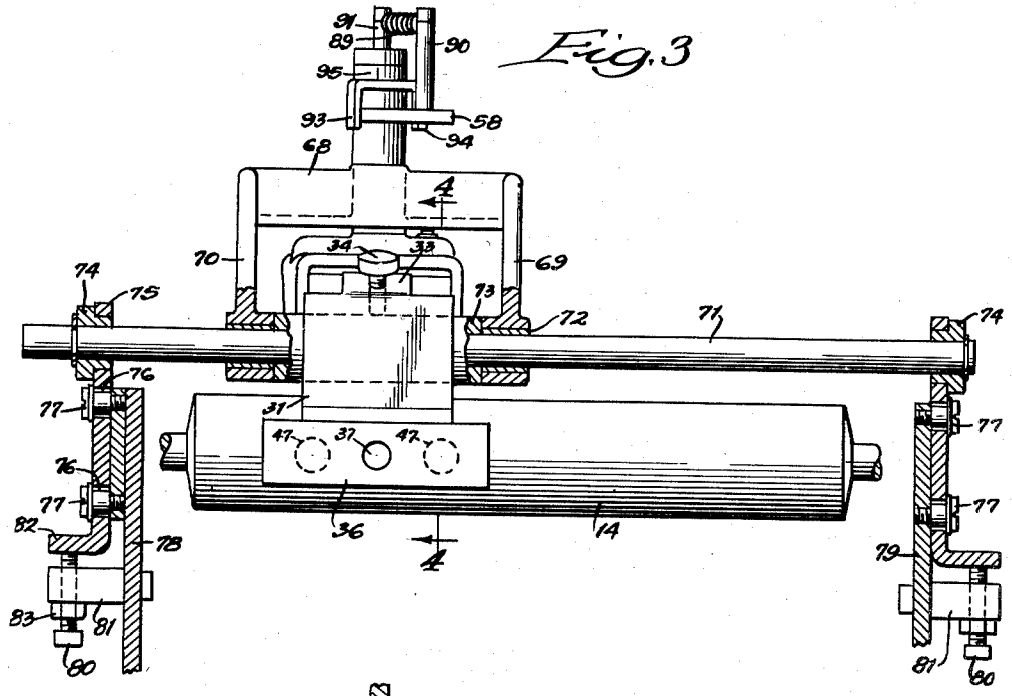
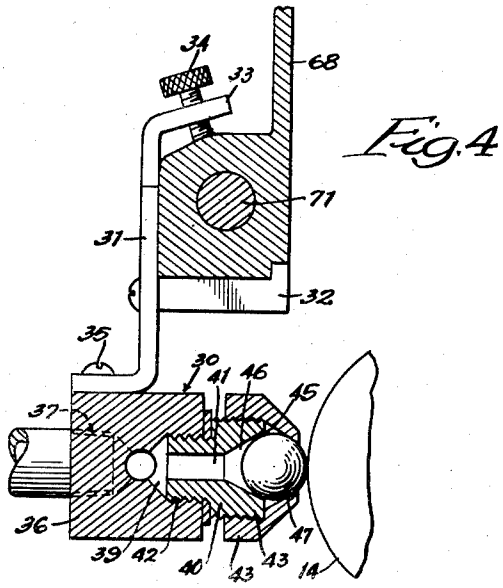


Fig. 4



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United States Patent Office 2,707,434 Patented May 3, 1955

2,707,434

INK FEED SYSTEM FOR PRINTING MACHINES

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Application May 23, 1952, Serial No. 289,594

10 Claims. (Cl. 101—350)

This invention relates to a new and improved inking system and more particularly to a method and apparatus for supplying ink composition in continuous fashion to rotatable inking rollers of a printing or duplicating machine.

There are many features in common in inking systems used in the production of copy by letter press printing or by lithographic printing or in other printing systems wherein ink is transferred for the production of copy. In general, press systems of the types described comprise an ink fountain having a fountain roller operative therein to convey a predetermined amount of ink about the peripheral surface thereof. Ink is transferred by a ductor roller which rocks back and forth between the fountain roller and the first of a series of inking rollers which rotate in operative engagement with laterally reciprocating spreader rollers to distribute the applied ink uniformly over the surface before the ink composition reaches the last roller in contact with the printing plate which takes off ink in amounts necessary to meet copy requirements.

Elaborate mechanism including doctor blades with screw adjustments and the like are provided in the ink fountain to measure the quantity of ink supplied to the fountain roller in the attempt to provide amounts calculated as precisely as possible to maintain copy take-off requirements for the production of copy of good quality.

Systems of the type described, representing present practice, are subject to a number of objections. Since it is desirable to make use of reasonably fresh ink having the desired consistency and since it is imperative for good operation to use ink which is reasonably free of dust, dirt, lint or other foreign matter, it becomes common practice to discard the ink composition remaining in the fountain at the end of the day's work and to clean out the fountain and parts associated therewith in the ink feed system. This involves not only considerable waste of ink composition but the process is frowned upon by operators because it is dirty and time-consuming.

Further, before introducing a new supply of ink to the ink fountain, it is necessary to remove the viscous composition from an open container and to spatulate the ink in the ink fountain in order to secure proper distribution thereof. This operation is time-consuming and objectionable by reason of the fact that transfer often occurs to the hands and to the clothes of the operator.

Because of the oily and viscous nature of the ink composition, difficulty is sometimes experienced in adhering the ink composition to the surface of the fountain roller in a manner necessary to achieve and to maintain the desired continuous feeding relation. Under such circumstances it is necessary to make use of special devices or forcibly to apply the ink onto the ink roller in order to maintain the desired feeding relation.

To regulate the flow of ink in a manner to supply an amount to maintain copy take-off requirements across the width of the plate has, in the past, required the use of highly skilled operators which increases the cost of operation and also increases the number of persons required to maintain the press in operation to produce copy of acceptable quality.

In present systems where printing occurs in limited areas across the plate, it is customary to block out the ink feed in sections corresponding to the non-printing areas to avoid ink feed thereto. This attempt to limit feed of ink to non-printing areas is defeated by the subsequent inking operations wherein the reciprocating rollers spread the ink composition laterally over adjacent surfaces to areas where no ink is needed or desired. As a result, considerable skill is required in operation to maintain a desired balance between ink supply and copy produced therefrom.

There are a number of other objectionable features not specifically enumerated and it is an object of this invention to produce an inking system which is substantially free of the objectionable features characteristic of present inking devices.

An object of this invention is to provide an inkling system wherein the ink supplied to the inking rollers is always fresh and free from dirt, lint and other foreign matter.

Another object is to produce an inking system of the type described whereby the amount of labor required for cleaning up the elements after the production of copy and to load the elements at the start of operations is markedly reduced and it is a related object to provide an inking system wherein the requirement for skilled labor is at a minimum.

A further object is to provide an inking system of the type described wherein the desired distribution of the ink composition over the inking rollers can be achieved without or else with a lesser number of oscillating and inking rollers in the ink feed system.

A still further object is to produce an inking system of the type described embodying simple means for effecting color change or embodying means whereby more than one color may be fed to the printing member at the same time.

A still further object is to produce an inking system wherein adjustment of the amount of ink supplied to various portions of the inking rollers may be achieved in a simple and efficient manner to give positive control and in which the application of ink can be limited to within certain areas of the inking rollers for application onto the inking plate without lateral spread of substantial amounts of ink to areas wherein the requirements therefor are at a minimum or absent.

A still further object is to provide a new and improved inking system which is rugged in construction and simple in operation whereby highly skilled technicians are not required for operation and in which inking may be limited to predetermined areas thereby to permit full control of the amount supplied for copy requirements.

A still further object is to provide an inking system wherein ink distribution for minimum copy requirements can be achieved without the use of oscillating rollers for spreading the ink transversely across the inking rollers whereby ink in the desired amounts can be accurately measured onto certain areas without displacement to adjacent areas and thereby to eliminate the need for highly skilled operators for the production of copy of good quality.

These and other objects and advantages of this invention will hereinafter appear and for purposes of illustration, but not of limitation, an embodiment of this invention is shown in the accompanying drawings in which—

Figure 1 is an elevational view in plan of an inking system embodying features of this invention;

Figure 2 is a top plan view partially in section of the inking system shown in Figure 1;

Figure 3 is a sectional elevational view taken along the line **3**—**3** of Figure 1, and

Figure 4 is a sectional elevational view taken substantially along the line **4**—**4** of Figure 3.

For purposes of illustration, description herein will be made to a lithographic duplicating machine having an ink system embodying features of this invention for supplying ink to the surface of a lithographic plate **10** mounted on the periphery of a rotating drum **11**. It will be understood that inking systems of the type described may be assembled for use in combination with other printing elements for the production of inked copy.

As shown in Figure 1, ink is transmitted to the plate **10** by a series of inking rollers **12**, **13** and **14** joined to each other by intermediate rollers **15** and **16** whereby ink applied to the first roller **14** is transferred from roller to roller to the end that the ink composition becomes uniformly distributed circumferentially about the rollers before it is taken off by the last roller **17** for transfer to the printing plate **10**. To the present, description has been made of a conventional assembly for transferring ink in uniform distribution to a printing plate except for the presence of oscillating rollers provided to secure lateral distribution in prior arrangements and which may be displaced by rotating rollers **15** and **16** for reasons which will hereinafter be described without handicapping the distribution of the ink composition.

An important concept of this invention resides in a new and improved ink supply system for delivering ink composition at a predetermined rate to roller **14**. The ink feed comprises an accumulator **20** operating under predetermined gas pressure for forcing ink composition introduced into the housing **21**, as by a pressure gun, piston like cupped container, or the like, through an outlet **22** into a flexible tubing **23** in communication with a control valve **24** and shutting off or limiting the passage of ink through the tubing. A pressure gauge **25** is connected in the tubing between the accumulator and shut-off valve to indicate the force under which the ink composition is maintained within the tubing.

While various means may be provided for directing the ink flowing through the stop valve **24** onto the inking roller **14**, an important concept of this invention resides in a system whereby the ink composition is supplied directly to the surface of the inking roller by means for placing a predetermined amount of ink thereon responsive to rotation of the roller in operation.

In accordance with the practice of this invention the means for supplying ink to the roller in response to operation thereof comprises a ball applicator **30** supported in position of use by a bracket **31** having a cleat **32** which maintains a gripping relation with a traversing mechanism which will hereinafter be described. An opening **33** is provided in the turned upper end portion of the bracket through which a thumb screw **34** extends in threaded engagement for adjustment of the bracket relative the inking roller. The ball applicator, secured as by a screw **35** to the lower end of the bracket **31**, comprises a cylindrical block **36** having an inlet **37** at one end in communication with tubing **38** leading from the stop valve **24**.

Another opening **39** in the forward end portion of the block and in communication with the inlet **37** provides a seat for a coupling member **40** having an opening **41** extending therethrough. The rearward portion of the coupling member is of smaller diameter and threaded about its outer surface **42** for engagement in the opening **39** in the block **36** while the forward end portion **43** of larger diameter is threaded for receiving a nose piece **44** in threaded engagement thereon. Located within the opening **45** defined by the nose piece and the cavity **46** of increasing cross section in the forward end portion of the coupling and into which the opening **41** terminates is a ball member **47** having a diameter greater than the opening in the nose piece whereby the ball is free to rotate within the defined opening **45** while an arcuate portion thereof extends beyond the nose piece in contacting relation with the peripheral surface of the first inking roller **14**.

A plurality of ball applicators of the type described may be arranged in laterally spaced apart relation for applying ink to separate portions of the inking roller. Each ball applicator may have its own valve for control of ink composition thereto or else they may be connected in groups with a single valve control for applying ink composition adjusted in amounts according to the central control.

Although use may be made of a ball member having a perfectly spherical surface with which the ink is carried during turning movement from the socket to the surface of the inking roller contacted by the ball, improvement in the smoothness and in uniformity of feed is secured by the use of a novel ball member having a plurality of grooves formed in the spherical surface with the grooves arranged in angular relation to one another so that at least one groove is always in position to provide a passage between the cavity or socket in which the ball is operating and the exterior thereof. It has been found that the existence of a through passage of the type described relieves surges in pressure heretofore occasioned by the presence of air bubbles in the line or by variation in forces operating to urge the ink composition through the line.

In operation, printer's ink, generally viscous in character, is pumped through a check valve or the like into the base of the accumulator **20**. From the accumulator, the ink composition is forced under constant pressure determined by the discharge pressure of the accumulator through the tubing **23** to the stop valve **24** which can be adjusted to permit a predetermined and accurately controlled rate of flow of the ink composition to the ball point feed member **30**. During rotational movement of the inking roller **14**, the ball member **47**, preferably loosely contained within the socket and urged into contacting relation with the surface of the roller by adjustment of the supporting bracket **31**, is actuated by frictional force to roll within its socket and transmit ink from the socket to the ink roller.

It will be apparent from the description that in the system of the type described ink is applied directly to the peripheral surface of the roller in amounts which may be controlled by adjustment of the valve member **24** precisely to maintain copy take-off requirements. Where a plurality of ball applicators are provided for feeding ink to the spaced apart portions of the roller, it is possible by means of this simple but positive adjustment to vary the flow of ink composition to selected portions of the roller thereby expediently and effectively to measure the precise amount of ink required to effect the desired printing operations.

Control of this character may be effected in devices of the type described and claimed herein without the necessity for highly skilled or expensive labor.

It will be apparent also that until the ink composition is applied by the applicator to the surface of the inking roller, the ink composition has not been exposed to the atmosphere and is incapable of being contaminated with dust, lint or other foreign matter or incapable of variation in solids content or viscosity as is generally experienced in prior systems because of evaporation of diluents or the like from the exposed ink composition. In addition, no ink remains in open reservoirs or fountains to be discarded when the printing operation has been completed with the result that considerable savings is experienced in materials.

When cleaning up at the end of the printing operation or for change in color, instead of having to remove the remaining ink composition from the fountain and cleaning the ink composition from the doctor blades, ductor rollers and the like as well as the distributor rollers, it is only necessary in the structure described and claimed herein to clean the distributor rollers. This is a relatively simple

and clean operation compared to the steps which have heretofore been required and permits considerable savings in time and labor as well as conservation of ink composition. It will be apparent from the description that the inking device may be readily mounted and disengaged from the machine to facilitate cleaning, repair and replacement.

To the present description has been made of a new and improved ink feed system providing means for feeding ink composition and adjusting the flow of the ink composition to give calculated control of the amount of ink supplied to the inking rollers and means operative in response to movement of the inking rollers for positive displacement of an amount of ink calculated precisely to maintain copy take-off requirements. The described system applies the ink directly to the inking roller thereby to avoid the possibility of non-uniform flow which has been experienced in prior processes because of the inability of the ink composition under certain circumstances to wet out the fountain roller or the inking rollers.

Description will now be made of a new and novel device forming a part of the inking system described and claimed herein whereby the ball applicator or other ink applicator is caused to rove back and forth across the surface of the inking roller within predetermined limits to apply the ink composition in uniform concentration and in a spiral pattern onto the surface of the roller.

As shown in the drawings, the rover mechanism which causes the ink applicating means to shift back and forth across the surface of the inking roller during operation comprises a roller **50** of cylindrical shape supported on shaft **51** mounted at each end in suitable bearings **52** provided in depending arms **53** of a yoke member **54**. The yoke is suspended at an intermediate point from the lower end portion of a pivot post **55** which extends upwardly through an opening in a swivel frame member **56** and through a spacer bushing **57** into one end portion of a horizontally disposed swivel arm **58** to which it is connected by a pin **59**. Thus as the arm **58** swings in a horizontal plane, the post **57** and associated yoke **54** with its supported roller **50** is caused to turn about the axis of the post.

Another cylindrical roller **60** spaced from the first by an amount corresponding to the distance between inking rollers **13** and **14** is similarly supported for rotational movement on a shaft **61** mounted at its ends in suitable bearings **62** provided in depending arms of a separate yoke **63**. The yoke is suspended at its midpoint from the lower end portion of a pivot pin **64** which extends upwardly through an opening in the forward end portion of the swivel frame member **58** in which it is mounted for free rotational movement about a horizontal axis. Tie rods **65** are pivotally joined to the upper end portions of the yoke members operatively to interconnect the yoke members to effect conjoint pivotal movement about their horizontal axes.

The extent of turning movement of the rover roller supporting yokes **63** and **54** is determined by an adjustable stop **66** depending from an intermediate portion of the connecting rod **65** between stop blocks **67** depending from the frame member.

The frame member from which the rover rollers are pivotally suspended has a rearwardly extending portion **68** in the form of a yoke having arms **69** and **70** depending therefrom. A trolley bar **71** extends through aligned openings **72** in the lower end portions of the arms **69** and **70** to permit the swivel frame member freely to rock about the trolley bar while also permitting the frame to shift freely in either direction transversely along the bar. A shaft **73** located on the trolley bar between the depending arms supports the bracket **31** in a manner to provide for lateral shifting movement thereof with the frame but independent of its rocking movement.

The trolley bar **71** mounting the frame member and bracket is rigidly supported at its ends in sleeves **74** fixed

to upper end portions of supporting plates **75** having slotted openings **76** through which fastening screws **77** extend to lock the plates in fixed position on side frame members **78** and **79** of the printing machine.

In order to permit a desired operative engagement to be effected between the rover rollers and the inking rollers, means are provided for adjustment of the trolley bar relative its supporting frame elements. As shown in Figure 3, the desired adjustment can be effected by means of a screw bolt **80** which threadedly engages an extension **81** rigid with the frame member and extends therethrough to engage the underside of a flange **82** extending outwardly from the lower end portion of the supporting plate **75**. A lock nut **83** is provided to prevent movement of the adjusting screw from desired position and the plates are held in their adjusted position by tightening down on screw members **77**. The slotted portions **76** provided in the plates **75** permit the amount of vertical adjustment necessary to effect the desired operative relation between rover rollers and printing rollers.

Positioned to extend upwardly into the path of the rearwardly extending portion of the swivel arm **58** are a pair of spaced stop pins **84** and **85** which extend upwardly from brackets **86** laterally slidable on a stop bar **87** fixed between side frame members **78** and **79**. The brackets **86** are secured in adjusted position along the stop bar **87** by thumb screws **88** which extend through openings in the bracket operatively to engage the bar to effect a desired gripping relation.

A tension spring **89** is anchored at one end about a pin **90** extending upwardly from an intermediate portion of the swivel arm **58** while the other end is anchored onto a pin **91** extending upwardly from post **64**. The tension spring **89** operates constantly to urge the swivel arm **58** into one direction or the other between positions of adjustment determined by a yoke **92** having spaced depending arms **93** and **94** between which the swivel arm **58** extends. The yoke **92** is fixed onto an end portion of a lever arm **95** which is operatively mounted for conjoint turning movement onto an end portion of the swivel post **55**.

Having described the construction of the rover mechanism, illustration will now be made of its operation for automatically shifting the ink applicators back and forth over the inking rollers to supply ink composition in a spiral pattern over the surfaces thereof during rotational movement.

In operation, the rover rollers are positioned at a slight angle with the inking rollers against which they are constantly urged by gravitational force. As the inking rollers turn during normal operation, turning movement is simultaneously transmitted by frictional force to the rover rollers in contacting relation therewith. Because of the angular relation between the inking rollers and the rover rollers, the latter are actuated transversely in the direction of offset whereby the entire rover frame assembly is caused to shift laterally on its trolley bar until the lever arm **58** is engaged by one or the other of the stop pins **84** and **85**. Upon engagement, further movement of the rover frame causes the swivel arm **58** to rock about its pivot until pin **90** positioned on an intermediate portion thereof shifts to the opposite side of the line formed by the pivot pins **55** and **64**. When the arm shifts beyond alignment, the spring force functions to shift the swivel arm **58** to its other position of adjustment as determined by the arms **93** and **94** depending from yoke **92**.

Conjointly with the swinging movement of the swivel arm, swivel pin **55** is turned about its axis whereby the angular relation of the rover roller becomes offset in the opposite direction with respect to the inking rollers and causes the rover frame thereafter to shift laterally in the opposite direction until similar engagement is effected between the swivel arm and the other of the stop pins. Turning movement of the first yoke **54** supporting

the rover roller **50** is transmitted directly to the other rover roller by means of connecting rods **65**.

The rover rollers are adapted to shift back and forth in the manner described during operation of the machine between two angular positions of adjustment, the extent of which is determined by the relationship between stops **66** and stop bars **67**. The angular relationship between the rover rollers and the inking rollers as determined by the cooperating stop members described controls the rate of lateral movement of the rover mechanism during normal operation.

It will be apparent from this description that the movement of the rover mechanism and its associated ink applicator or applicators can be limited to a predetermined pattern with respect to the extent of movement by selectively positioning the stop bars **84** and **85** and in the rate of movement by adjusting block **66** which controls the angular relation between the roving rollers and the inking rollers.

In addition to causing the ink applicators to move back and forth along the ink rollers as described, the rover performs an important function in distributing the ink composition over the area selected for inking without causing it to spread to areas where ink is not desired. This back and forth motion of the rover aids in spreading the ink first by providing a rolling action having a component along the length of the ink roller as well as around its circumference and secondly, by picking up ink composition in areas where it is in excess and depositing it in areas where there may tend to be a deficiency. Since the area traversed by the rover is controllable, as described above, it does not spread ink into areas outside of these limits. The spreader rollers used in common practice contact the inking rollers throughout their entire length and reciprocate over a relatively short range. Their action, therefore, makes it impossible to establish a clear line of demarcation between areas where ink is desired and those where it is not desired. The controlled spreading action accomplished by the rover makes it unnecessary to use reciprocating spreader rollers of the conventional type and in addition permits the use of a lesser number of inking rollers to obtain proper distribution of the ink.

It will be understood that spreader rollers reciprocating back and forth in the usual manner may be employed in the inking system and it will be further understood that the inking mechanism described is subject to various modifications with respect to parts, their arrangement and assembly and that such mechanism may be used in connection with other printing machines without departing from the spirit of the invention, especially as defined in the following claims.

I claim:

1. An inking system of the type described having ink distribution rollers comprising an ink applicator including a ball point member, means for supporting the ink applicator with the ball point in surface contact with an inking roller whereby frictional forces become operative to cause turning movement of the ball responsive to operation of the roller, means for causing the ink applicator to reciprocate crosswise of its support relative the inking roller between two predetermined positions of adjustment during rotational movement of the roller to apply the ink in a spiral pattern on the surface of the inking roller, and means for supplying ink at a predetermined rate under pressure to the ball point member.

2. An inking system of the type described having distribution rollers comprising an ink applicator for directing a line of ink onto the surface of an inking roller, a support upon which the ink applicator is mounted for sliding movement in parallel relation relative the inking roller, an operative connection between the applicator and the inking roller for causing the applicator to reciprocate on its support crosswise relative the inking roller in response to rotational movement of the inking roller to apply a spiral line pattern of ink to the surface of the inking roller, and means for supplying a predetermined quantity of ink under pressure to the ink applicator.

3. An inking system of the type described having distribution rollers comprising an ink applicator for directing a line of ink onto the surface of an inking roller, a support upon which the inking roller is mounted for relative crosswise movement parallel to the inking roller, means responsive to rotational movement of the inking rollers for causing the ink applicator to reciprocate crosswise on its support between two positions of adjustment including a rover roller mounted for free rotational movement in an axis parallel with the inking roller and for turning movement about an axis normal to the inking roller between two positions of offset, means for positioning the rover roller in operative engagement with the inking roller whereby the rover roller is caused to rotate and shift laterally when offset from the inking roller, means for shifting the offset of the rover roller relative the inking roller at predetermined spaced apart positions to cause the rover roller to shift back and forth between two predetermined positions of adjustment during rotational movement of the inking rollers, an operative connection between the rover roller and ink applicator for movement of the latter conjointly with the rover roller crosswise of the inking roller and means for supplying a predetermined quantity of ink to the ink applicator.

4. An inking system of the type described having ink distribution rollers comprising an ink applicator for directing a line of ink onto the surface of an inking roller, a supporting member means responsive to rotational movement of the inking roller for causing the ink applicator to rove crosswise of the inking roller between two positions of adjustment including a housing mounted on said supporting member for shifting movement crosswise of the inking roller, a rover roller mounted on the housing for rotational movement about an axis parallel with the inking rollers and for turning movement normal to the inking roller between two positions of offset, means for positioning the rover roller in operative engagement with the inking roller whereby the rover roller is conjointly rotated and caused to shift with its housing crosswise over the inking roller when offset, means operative during crosswise movement of the rover roller to shift the rover roller in the opposite offset whereby the rover roller is caused to move in the opposite direction responsive to continued rotational movement of the inking roller, said latter means including stops positioned in spaced apart relation to limit movement of the rover roller between two determinable positions of adjustment, means forming a part of said housing for carrying the ink applicator in crosswise movement therewith and means for supplying a predetermined quantity of ink to the ink applicator.

5. An inking system of the type described comprising an ink applicator for directing a line of ink onto the surface of an inking roller, a supporting member means responsive to rotational movement of the inking rollers for causing the ink applicator to reciprocate crosswise of the inking rollers between two positions of adjustment, said means including a housing mounted on said supporting member for shifting movement crosswise of the inking rollers, a pair of rover rollers suspended from the housing for rotational movement about an axis parallel with the inking rollers and for turning movement about an axis normal to the inking rollers between two positions of offset, means for positioning the rover rollers in spaced apart relation for operative engagement with the separate inking rollers, means interconnecting the rover rollers for effecting conjoint turning movement about the axis normal to the inking rollers, means adapted operatively to be engaged during crosswise movement of the rover rollers to effect turning movement thereof to an opposite offset whereby the rover rollers and attached housing are caused to shift crosswise between the two determinable

stop positions, means forming a part of said housing for carrying the ink applicator in crosswise movement therewith, and means for supplying ink under pressure to the ink applicator.

6. An inking mechanism as claimed in claim 4 in which the housing is mounted for rocking movement about an axis parallel to the inking rollers for bringing the rover rollers into and out of engagement with the inking rollers.

7. An inking mechanism as claimed in claim 4 including adjustable means for limiting the degree of offset of the rover rollers.

8. An inking mechanism as claimed in claim 4 which includes spring means constantly urging the rover rollers to one or the other of their offset positions.

9. An inking mechanism as claimed in claim 4 including means for adjusting the housing relative the inking rollers to effect operational engagement of the rover rollers therewith.

10. An inking system of the type described having ink distribution rollers comprising an ink applicator for applying ink onto the surface of an inking roller, means for causing the ink applicator to shift crosswise of the inking roller between two positions of adjustment comprising a housing mounted for shifting movement crosswise of the inking roller and for rocking movement in a plane normal to the inking roller, a rover roller supported by the housing for rotational movement about an axis substantially parallel with the inking roller and for turning movement about an axis normal to the inking roller and substantially perpendicular to the plane in which the housing is rockable thereby to permit the rover roller to be rocked with the housing into operative engagement with the surface of the inking roller, means operative at predetermined spaced apart positions to shift the rover roller to one of its offset positions during crosswise movement in one direction and to another of its offset positions during crosswise movement in the other direction whereby said rover roller is caused to shift back and forth between two predetermined positions of adjustment and to spread the ink about the surface of the inking roller during such operational engagement therewith.

References Cited in the file of this patent

UNITED STATES PATENTS

701,221	Ray	May 27, 1902
878,651	Mascord	Feb. 11, 1908
1,808,815	Hervey et al.	June 9, 1939