April 28, 1970 R. K. NORTON 3,508,489

FLUID APPLYING MECHANISM

Original Filed Oct. 19, 1965 3 Sheets-Sheet 1

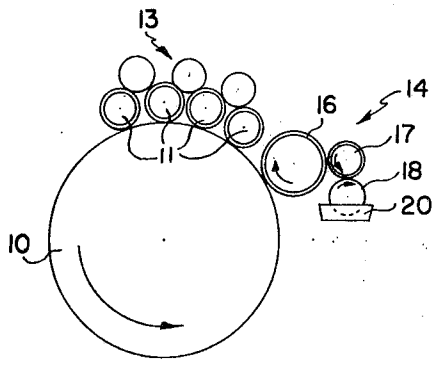


FIG. 1

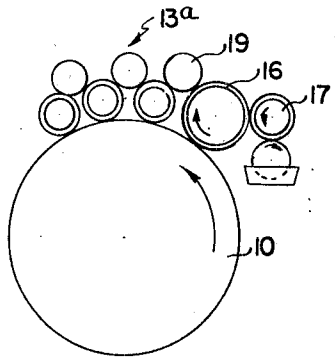


FIG. 2

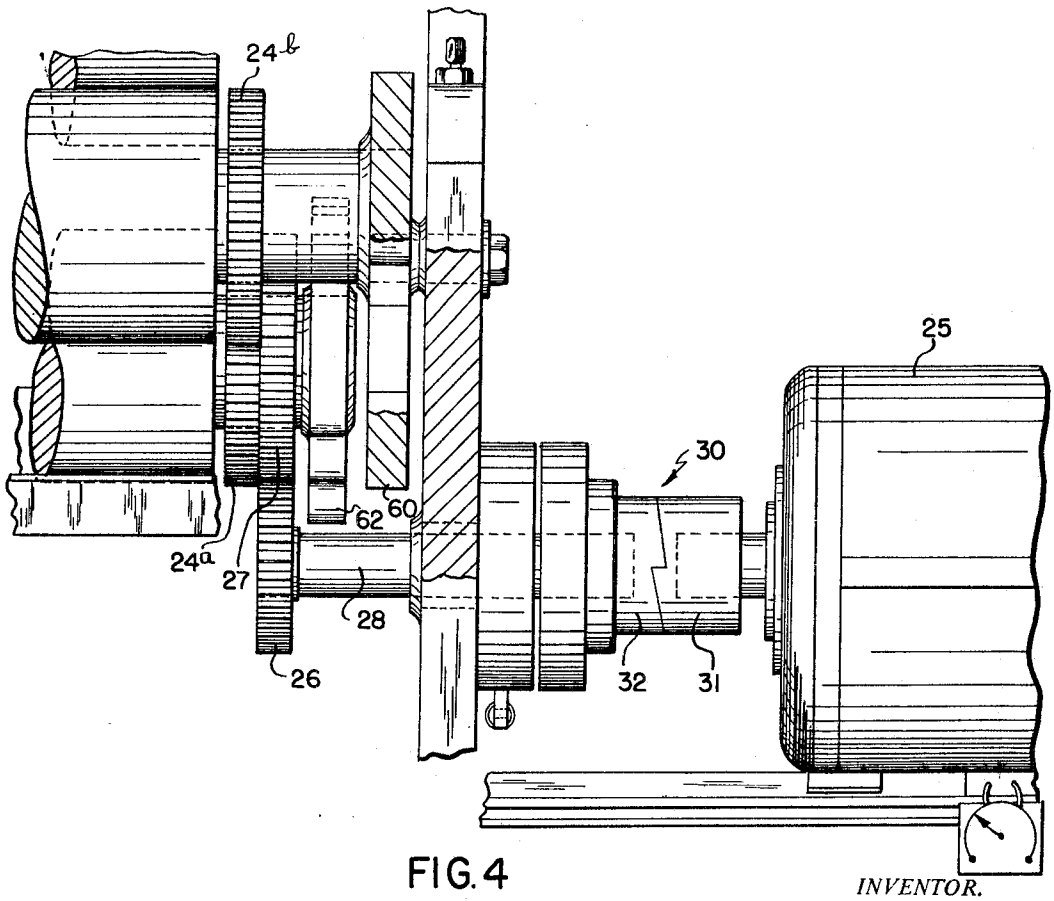


FIG. 4

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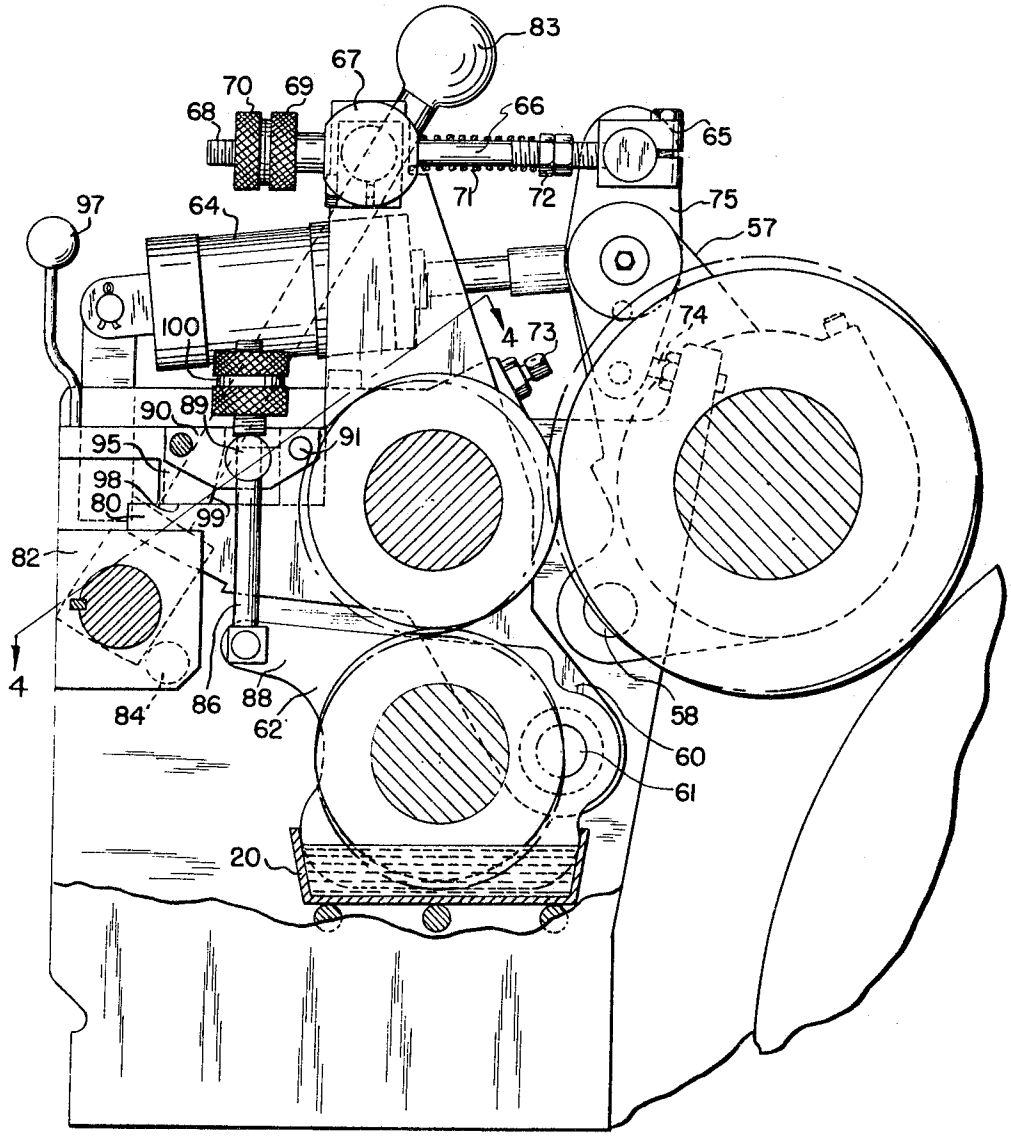


FIG. 3

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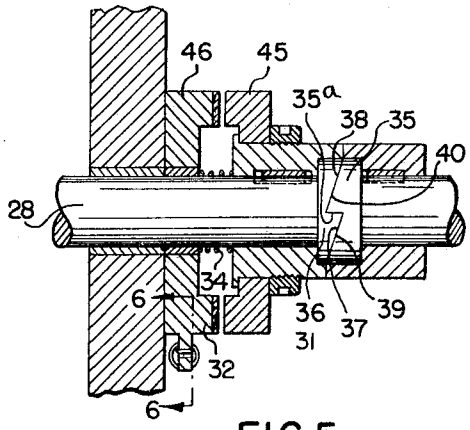


FIG. 5

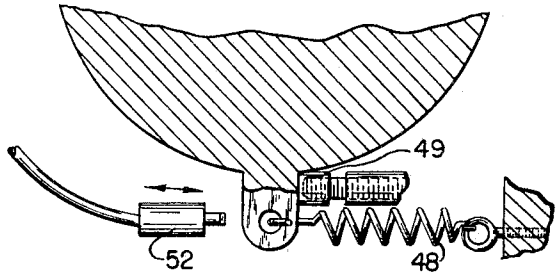


FIG. 6

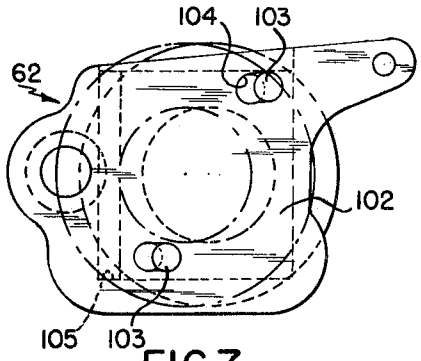


FIG. 7

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United States Patent Office 3,508,489 Patented Apr. 28, 1970

3,508,489

FLUID APPLYING MECHANISM

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Continuation of application Ser. No. 497,824, Oct. 19, 1965. This application May 15, 1969, Ser. No. 840,082
Int. Cl. B41l 25/02
U.S. Cl. 101—148 7 Claims

ABSTRACT OF THE DISCLOSURE

A lithographic printing press in which an ink coated first roll, e.g., a resilient form roll running in engagement with the printing plate mounted on a plate cylinder, has dampening fluid supplied thereto from a second roll which runs in engagement with the first roll with the first and second rolls being resilient surface rolls. The rolls are ink receptive and the second roll is driven at a speed different from the first roll to control the amount of dampening fluid transferred to the first roll, the first roll being driven at the surface speed of the plate. The second roll is driven by drive means which includes an overrunning device so that the first roll can drive the second roll at a speed faster than the drive to the second roll but if this occurs, a brake mechanism responsive to the overdriving effects a braking of the second roll to the speed of the drive means. If the overdrive is sufficient, a switch is tripped to perform a control function in addition to the braking. A hydrophylic surface roll runs in engagement with the second roll and operates at the same surface speed of the second roll and dips into a reservoir of dampening fluid contained in a pan to supply dampening fluid to the second roll. The first roll has a non-operative position away from the plate and the second roll can be moved to and from the engagement with the first roll when the latter is in its non-operative position and is moved to engagement with the first roll to move the latter to an operating position against the plate. The third roll can be moved to and from engagement with the second roll regardless of the position of the latter.

This application is a continuation of application Ser. No. 497,824, filed Oct. 19, 1965.

The present invention relates to a lithographic printing press and more particularly to a dampening system for applying dampening fluid to the surface of a printing plate in such a press.

One commercial method of dampening a lithographic printing plate utilizes a variable speed dampening roll which runs in engagement with a form roll to apply dampening fluid to the printing plate, the speed of the dampening roll being varied to control the amount of dampening fluid applied.

An important object of the present invention is to provide a new and improved method and apparatus for applying dampening fluid to the surface of a lithographic printing plate which provides better control of the dampening fluid than those systems presently available.

Another object of the present invention is to provide a dampener using a variable speed roll in which the differential speed between the roll and a cooperating roll is not as critical as in existing arrangements.

A further object of the present invention is to provide a new and improved method and apparatus for applying dampening fluid to a lithographic printing plate in which dampening fluid is applied to an ink covered roll, the surface speed of which is different from, and preferably adjustable relative to, the surface speed of a cooperating

ink covered roll to control the amount of dampening fluid applied to the press.

A further object of the present invention is to provide a method and apparatus for applying dampening fluid to a lithographic printing plate in which a transfer roll runs at a different speed from the roll receiving the dampening fluid therefrom and in which the surface speed of the transfer roll for a given speed of the receiving roll may be adjusted over a substantial range without losing control.

A still further object of the present invention is to provide a new and improved dampening mechanism or other coating mechanism in which a transfer roll is driven at a different speed preferably less than a cooperating roll which receives material from the transfer roll with the drive to the transfer roll being so constructed and arranged that if the cooperating roll tends to overdrive the drive to the transfer roll, a control operation will be performed to maintain speed of the transfer roll and preferably protect the rolls if the overdrive exceeds a predetermined torque.

Yet another object of the present invention is to provide a new and improved printing press having a dampening system in which the surface of a roll having an elastomeric peripheral portion tends to be driven at one speed by a cooperating member running in engagement with the surface of a cooperating rotating member and wherein a drive to the roll effects rotation of the roll at a different and slower speed than the surface speed of the cooperating member with the drive being so constructed and arranged that it will be overrun when the roll rotates at a speed higher than the drive speed and so that the roll will be braked to slow the roll to the drive speed with a trip off function preferably being performed if the overdrive exceeds a predetermined torque.

It is also an object of the present invention to provide a coating mechanism in which cooperating elastomeric rolls running in engagement with each other are operated at different surface speeds to control the application of a non-lubricating type coating fluid and a lubricating fluid is supplied to the rolls to provide a lubrication of the slippage between the rolls.

A further object of the present invention is to provide a new and improved method and apparatus in which a transfer roll which transfers dampening fluid to a form roll is driven by a drive separate from the drive for the form roll and in which the transfer roll is braked if the form roll overruns the drive for the transfer roll, the mechanism preferably operating to perform a control function if the overdrive exceeds a predetermined torque.

Further objects and advantages of the present invention will be apparent to those skilled in the art to which it relates from the following detailed description of the preferred embodiment thereof made with reference to the accompanying drawings forming a part of this specification and in which:

FIG. 1 is a diagrammatical view of a portion of a lithographic printing press embodying the present invention;

FIG. 2 is a modification of the present invention;

FIG. 3 is an elevational view of the dampening mechanism of FIG. 1 having portions schematically illustrated portions in section and portions removed;

FIG. 4 is a sectional view of the dampening mechanism taken approximately at line 4—4 of FIG. 3 and having portions removed;

FIG. 5 is a fragmentary sectional view of a portion of a driving mechanism for the dampener of FIG. 4;

FIG. 6 is a fragmentary sectional view of a portion of the driving mechanism taken approximately at line 6—6 of FIG. 5; and

FIG. 7 is an elevational view of a portion of the dampening mechanism of FIG. 3.

While the present invention is susceptible of use in various coating machines, it is particularly designed for use in a printing press. Referring to the drawings, the present invention is illustrated in a lithographic printing press which is partially shown in FIG. 1 of the drawings.

As shown in FIG. 1, the printing press includes a plate cylinder **10** which is inked by a conventional inking mechanism **13**, including form rolls **11**. Dampening fluid is applied to the printing plate in advance of the ink by a dampening mechanism, designated generally by the reference numeral **14**. The dampening mechanism **14** includes a form roll **16** adapted to rotate about its axis in rolling contact with the plate on the plate cylinder **10** and a transfer roll **17** which runs in engagement with the form roll **16** and rotates about its axis in a direction opposite to the direction of rotation of the form roll **16** so that the portions of the rolls which engage each other are moving in the same direction.

A metering roll **18** runs in engagement with the transfer roll **17** and rotates in a direction about its axis opposite to the direction of rotation of the transfer roll **17** so that the parts of the rolls which engage to form the nip between the rolls are moving in the same direction. The metering roll **18** is a roll having a hydrophylic, smoothly finished, hard unyielding surface, preferably chrome, which, in the illustrated embodiment, rotates through dampning fluid in a pan **20**. The rotation of the hydrophilic roll **18** through the fluid in the pan **20** causes the surface of the roll **18** to pick up a film or coating of dampening fluid which is metered and transferred to the transfer roll **17** at the nip between the transfer roll and the metering roll **18**.

The form roll and the transfer roll **17** have resilient surfaces which may be provided by a conventional elastomeric material, such as neoprene, conventionally used in inkers and dampening mechanisms to provide resilient surfaces. The rolls **16**, **17** are oleophilic, that is, ink receptive, and during operation, both the form roll **16** and the transfer roll **17** will have an ink coating built up thereon as a result of running against the plate on the plate cylinder **10** which has been inked by the inking mechanism **13**. The hydrophylic surface of the roll **18**, however, is an ink rejecting surface and the roll **18** will operate as a "clean" roll. Consequently, during operation, the rotation of the metering roll **18** in the pan **20** causes the surface of the roll to pick up a coating of dampening fluid to be applied to the ink coated transfer roll **17** with the dampening fluid being metered and smoothed when it is applied to the transfer roll **17** by the pressure relationship between the rolls **17** and **18**.

The form roll **16** is frictionally driven by the plate on the plate cylinder **10** so that the surface speed of form roll **16** is the same as the surface speed of the plate. The form roll **16** may also be positively driven from the press drive. The transfer roll **17**, however, is driven at a surface speed different from the surface speed of the form roll **16**, preferably at a slower speed, to control the amount of dampening fluid applied. It is preferable that the transfer roll **17** be driven at a speed which may be adjusted to enable the amount of dampening fluid applied to the plate to be adjusted by changing the surface speed of the roll **17** relative to the surface speed of the roll **16**. The coating of ink on the rolls provides a lubrication for the slipping between the elastomeric rolls.

In the preferred and illustrated embodiment, the transfer roll **17** is driven from the metering roll **18** by gars **24***a* and **24***b* which are mounted on the shafts of the rolls **17** and **18** and the roll **18** is driven by a variable speed motor **25** positioned at the gear side of the press.

The roll **18** is driven by the motor **25** through a unidirectional clutch **30**. The clutch **30** has an input element **31** keyed to the shaft **29** of motor **25**, and an output element **32** slidably keyed to a drive shaft **28** which carries a gear **26** in meshing engagement with a gear **27** on the shaft of roll **18**. The output element **32** has limited slidability on the shaft **28** to allow the output element **32** to shift inwardly from its normal position on shaft **28** against the bias of a spring **34**. The output clutch element **32** will shift inwardly if it is driven so as to overrun the drive from the input element **31**. As will be explained hereinafter, the shifting of the output element **32** causes a braking of the overdrive to again re-establish a driving relationship between the clutch elements.

The clutch elements **31**, **32** are shown in the form of a jaw clutch. The elements are generally circular in cross section and their adjacent ends are each formed to provide at least one driving tooth and preferably are formed to provide diametrically opposed driving teeth. As illustrated in FIG. 5, the clutch elements **31** and **32** each include four driving teeth. These driving teeth are identical in construction and therefore only one will be described in its relation with its clutch element and a tooth on the other of the clutch elements. The clutch element **31** has a driving tooth **35** with a circumferentially facing driving surface **35***a* which is formed between the ends of offset helical surfaces **37** formed on the input clutch element **31**. The tooth surface **35***a* extends axially to join the helical surfaces **37**, **38** and forms the driving surface of the tooth. The clutch element **32** has a tooth **36** with a driving surface **36***a* which is formed by similar offset helical surfaces **39**, **40** so that if the direction of relative rotation between the input and output clutch elements are such to move the driving surfaces **35***a*, **36***a* together, a driving relationship is established while if the direction of relative rotation is such as to move the surfaces **35***a*, **36***a* apart, no drive is established and the helical surfaces **37**, **39** and the helical surfaces **38**, **40** will cooperate to produce an axial movement of the clutch member **32** away from the clutch member **31**. The illustrated clutch is basically the same as certain conventional overrunning clutches.

The overrunning feature of the output clutch element **32** is utilized to prevent the form roll **16** from driving the transfer roll **17** so as to overrun the drive from the variable speed motor **25**. If the form roll **16** starts to overdrive the transfer roll **17** and the metering roll **18**, the clutch **30** will overrun to cause the output element **32** to shift to the left, as viewed in FIG. 5, against the bias of spring **34**, as described above, and when this occurs, a brake shoe **45** mounted on the output element **32** of the clutch **30** will engage a brake element **46** to brake the rotation of the transfer roll **17**. When the speed of the transfer roll is braked, it will be slowed to where the variable speed motor will again effect the drive. In this manner, the speed of the transfer roll **17** is maintained substantially constant even though the form roll **16** tends to overdrive the motor **25**. The extent of the axial movement of the clutch member **32** is preferably limited so that the teeth **35**, **36** are always in axially overlapping relationship.

In the illustrated embodiment, the brake element **46** is supported about the drive shaft for limited rotation and is spring-urged by a spring **48** to a predetermined position against an adjustable stop **49**. In the event that the torque of the overdrive is sufficient to overcome the spring **48**, the spring will yield and the brake element **49** will rotate away from the stop and operate a switch **52** to trip the dampening mechanism, or the press, or to perform another control function. The switch **52** is preferably mounted for adjusting movement toward and away from the stop **49**.

The performance of a trip function in the event that the overdrive exceeds a predetermined torque is particularly advantageous during the clean-up operation of the press. During the clean-up operation, the metering roll is normally dropped away from the transfer roll and a cleaning fluid is supplied to the inking mechanism. This

fluid will distribute itself through the ink rolls and the ink coated rolls of the dampening mechanism to clean up the ink. Normally the ink provides a lubricating effect between the form roll and the transfer roll, but as the ink cleans up, the lubrication between the transfer roll and the form roll is reduced and damage to the elastomeric roll surfaces which slip relative to each other might result unless a trip off function is performed as the lubrication is reduced.

The overdrive torque can also be limited, if desired, by providing a friction drive adapted to slip on overload between the brake element **45** and the output clutch element **32**. This can be in the nature of any type of conventional overload friction clutch.

In the illustrated and described embodiment, the form roll **16** is supported by a support member **57** which is pivoted at its lower end to a dampener frame member by a pivot pin **58**. The transfer roll **17** is supported by a support member **60** pivotally supported on the frame member by a pivot pin **61**. The metering roll **18** is supported by a pivoted member **62** which is pivoted coaxially with the pivoted member **60** about the pivot **61**.

The form roll **16** is moved into and out of engagement with the plate cylinder **10** by the operation of a cylinder **64** which is preferably pneumatically operated and which is connected between the dampener side frame and the upper end of the support member **57** as the latter is viewed in FIG. 3. Operation of cylinder **64** moves support member **57** about the axis of the pivot pin **58** at the lower end of the support member **57** by a connection **65** which includes a tie rod **66**. The tie rod **66** is pivoted to the support member **60** and is received in and extends through a block **67** pivotally supported on the upper end of the support member **60**. The end of the tie rod projecting outwardly from the block **67** and designated by the reference numeral **68** is threaded and has a stop member **69** threaded thereon for engaging the pivoted block **67**, the stop member being backed up by a lock nut **70**. The portion of tie rod **66** between the upper end of the support members **57**, **60** has a coil spring **71** which surrounds the tie rod and which has ends abutting the pivot block **67** on the support member **60** and an adjustable nut **72** threaded onto the tie rod respectively.

When the cylinder **64** is operated to move the form roll **16** out of engagement with the plate, the support member **57** for the form roll will move about its pivot **58** and the tie rod connection will cause the transfer roll support member **60** to move about its pivot **61** which is offset to one side of and below the pivot **58**. As the form roll and the transfer roll swing about their pivots, a clearance will be provided between the rolls because of the offset pivots. The "off" position of the rolls may be determined by an adjustable stop **73** which is engaged by a part of the support member **57**. Similarly, when the cylinder **64** is operated to move the transfer roll **17** with the form roll **16** to an "on" position, the different pivot axes will cause the rolls to move into engagement with each other. When "on" the rolls will have a pressure engagement with each other controlled by the position of the threaded stop member **69** which determines the relative positions of the support members **57**, **60**. The "on" position of the form roll **16** and its pressure relationship with the plate cylinder may be determined by an adjustable stop **74** which engages a part **75** on the member **57** to limit its movement toward the plate cylinder.

When the form roll **16** is in its "off" position, the transfer roll **17** may be brought into contact with the form roll by actuating a lever **83** without moving the form roll to its "on" position. The lever **83** is connected to an actuating block **82** which is pivoted for movement between an "off" position and a second position to cause a pin **84** on the block to engage the underside of a laterally projecting portion **80** on the support member **60** and move the support member **60** about the pivot pin **61**. The spring **72** yields as the support member **60** moves about its pivot and the transfer roll **17** moves into engagement with the form roll **16**. The form roll **16** is held against movement by the spring **72** and by the cylinder **64**.

The support member **62** for the metering roll **18** is connected to the support member **60** for the transfer roll **17** to cause the metering roll to move with the support member **60** and the transfer roll as they are moved about the pivot while maintaining that pressure relationship, but the connection therebetween is extensible to allow the metering roll to be dropped away from the transfer roll **17**. Referring to FIG. 3, the metering roll support member **62** is connected to the adjacent member **60** by a generally vertical tie rod pivoted to a laterally projecting portion **88** on the member **62** below the projection **80** of the support member **60** and extending between portion **88** and a block **90** pivoted at **91** to the support member **60** above the lateral projection **80** of the support member **60**. The tie rod **86** has a pivot pin portion **92** extending laterally therefrom which is pivotally received in the block **90** so that the time rod will pivot about an axis parallel to but offset from the pivot axis **91** of the block **90**. The block **90** is movable about its pivot **91** between two positions relative to the suport member **60** to raise and lower the tie rod **86** to move the metering roll between a position where the metering roll engages the transfer roll and a second position where it is out of engagement with the transfer roll. The guide block **90** is held in the selected one of its two positions relative to the support member **60** by a positioning member **95** which is pivoted to the guide block **90** for pivotal movement about an axis parallel to the pivot axis **91** and is disposed on the side of the tie rod connection **89** which is remote from the axis **91**. The positioning member **95** engages the upper side of the laterally projecting portion **80** of the member **60** and can be rotated between two positions by means of a handle **97** to cause either a generally planar surface **98** or a generally planar surface **99** on the member **95** to engage the upper side of the portion **80**. The surface **99** is angularly related to the surface **98** so that when member **95** is rotated such that surface **99** engages the projecting portion **80**, the tie rod **86** is lowered relative to the laterally extending portion **80**. This in turn lowers the support member **62** relative to the support member **60** by allowing the member **62** to move about the pivot **61** to drop the metering roll out of engagement with the transfer roll. When the handle **97** is operated to return the surface **98** into engagement with the upper side of the laterally projecting portion **80**, the tie rod **86** is raised to move the metering roll into engagement with the transfer roll. The relationship of the metering roll and the transfer roll for the various positions of the lever **97** may be changed by adusting a threaded stop member **100** on the upper end of the tire rod **86** to increase or decrease the length of the tie rod between support member **62** and the tie block **97**. This will also adjust the pressure relationship between the metering roll and the transfer roll. In the illustrated mechanism the tie rod **86** extends through a pivot block which is pivoted to the member **90** and is slidable therein. It will be appreciated by those skilled in the art that the weight of the metering roll and support member **62** will maintain the positioning member **95** in engagement with the laterally projecting portion **80**.

Thus far the description has referred to the vertically extending support members **57**, **60**, **62** which are on the feed side of the press which is the remote side shown in FIG. 3. It will be understood that these members are duplicated at the other side of the dampener shown in FIG. 3 and are constructed and arranged in the same manner to support the ends of rolls at that side of the dampening mechanism. Similarly, the cylinder **64**, the tie rods **66**, **86**, the block **82**, and the positioning member **95** are also duplicated at the gear side of the dampening mechanism. Certain of these parts are shown in FIG. 4 and have been given the same reference numerals as the

corresponding parts. The blocks **80** and the positioning members are, however, operated by handles which are manually disposed only on the feed side of the press and are not duplicated in the opposite or gear side of the press.

The end of the metering roll **18** on the feed side of the press may be shifted horizontally to skew the axis of the metering roll with respect to the axis of the transfer roll. As shown in FIG. 7, support member **62** mounts a bearing block **102** having a bearing therein which the adjacent end of the metering roll shaft is rotatably supported. Bearing block **102** includes pin members **103** connected thereto and which extend into elongated slots **104** formed in the member **62**. This pin and slot arrangement limits movement of the end of the metering roll in a vertical direction but permits horizontal movement as the bearing block slides on a supporting surface **105** formed on the member **62**. When the metering roll has been moved to provide the desired angularity with respect to the transfer roll, the bearing block **102** may be fixed against movement on the member **62** by a conventional locking mechanism which has not been shown in the drawings.

Skewing the metering roll with respect to the transfer roll, as described above, changes the angularity between the metering roll axis and the bearing blocks. To accommodate this angularity, the bearings in the bearing blocks are conventional self-aligning bearings which are constructed to swivel in the bearing blocks so as to accommodate the skewing of the roll shaft. It should be apparent that skewing of the metering roll, as described, will cause the gears **24***a* and **27** on the metering roll shaft to move slightly relative to the driving gear **26** and gear **24***b* on the transfer roll shaft. To prevent damage to the meshing gears as a result of misalignment due to skewing the metering roll, gears **24***a* and **27** on the metering roll are made of a stiffly resilient plastic such as nylon.

From the foregoing description, it can be seen that the transfer roll **17** can be brought into engagement with the form roll **16** while the latter is in its "off" position and while in contact with the metering roll **18** so that the dampening fluid may be applied to the form roll and films formed on the surfaces of the metering roll, the transfer roll and the form roll before the form roll is moved into engagement with the plate. Similarly, the metering roll may be moved into or out of engagement with the transfer roll by operating the lever **97** when the transfer roll is in or out of engagement with the form roll.

While the form roll **16** has been described as a form roll of the dampening mechanism, it will be understood by those skilled in the art that the form roll might also be a form roll of the inker, and that when the form roll is moved into position with the plate cylinder it may also engage a vibrating roll **19** or other roll of an inker **13***a* as illustrated in FIG. 2 to function as the first form roll of the inker as well as the form roll of the dampening mechanism. In such an arrangement, as in the first described arrangement, both the form roll **16** and the transfer roll **17** will have an ink coating thereon. The vibrating rolls of the inker are conventionally driven from the press drive and the vibrating roll will also drive the form roll **16** at the surface speed of the plate through the engaged peripheral surfaces of the rolls.

It has been found that a dampening mechanism embodying the present invention is not speed sensitive and only a small quantity of alcohol or the like need be used to obtain correct operation of an application of dampening fluid. Alcohol is commonly used in the dampening fluids applied by a dampening mechanism of a lithographic printing press to facilitate the obtaining of an even application of a thin film to the plate.

Having described the invention, the following is claimed.

1. In a lithographic printing press having a printing plate mounted on a rotatable plate cylinder, inking mechanism for applying ink to the printing plate and a dampening mechanism for supplying dampening fluid to an ink coated elastomeric form roll running in engagement with the printing plate, said dampening mechanism comprising an elastomeric transfer roll running in engagement with said ink coated form roll, said transfer roll having an ink accepting surface thereon whereby a coating of ink is formed on said transfer roll during operation of said press, means for supplying dampening fluid to said transfer roll to apply a film of dampening fluid to said transfer roll, and means for driving said transfer roll at a surface speed different from the surface speed of said form roll to create slippage between the elastomeric form roll and the elastomeric transfer roll to control the amount of dampening fluid applied to said plate, including means for varying the speed of said transfer roll.

2. In a lithographic printing press as defined in claim **1** wherein said means for driving said transfer roll comprises an unidirectional torque transmitting connection and means responsive to an overdriving of said connection by said trasfer roll for braking said transfer roll.

3. In a lithographic printing press as defined in claim **1** wherein said means for supplying dampening fluid to said transfer roll comprises a hydrophilic metering roll running in engagement with said elastomeric transfer roll and a pan for holding dampening fluid, said metering roll projecting into said pan to pick up a film of dampening fluid.

4. In a lithographic printing press as defined in claim **1** further comprising means for supporting and moving said form roll to and from engagement with said plate and said transfer roll to and from engagement with said form roll when the latter is in a position clear of said plate comprising means to limit movement of said form roll toward said plate to determine the operating position thereof and means to adjust the distance between the axes of said form and transfer rolls to adjust the operating relationship therebetween.

5. A lithographic printing press as defined in claim **4** wherein said drive means comprises means enabling said form roll to drive said transfer roll at a speed greater than that of said drive means and means for braking the rotation of said transfer roll to the speed of said drive means in response to the roll being driven at a speed greater than the speed of said drive means.

6. A mechanism for applying a coating of a given material to a moving surface comprising a first roll having a surface formed of elastomeric material and rotating at a given surface speed, and means for applying said material to said first roll comprising a second roll having a surface running in engagement with said first roll, said surface of said second roll being formed of elastomeric material, and drive means operating at a predetermined speed for driving said second roll at a surface speed different from said first roll to control the amount of material being transferred to said first roll from said second roll including means enabling said first roll to drive said second roll at a higher speed than said drive means and means responsive to an overdriving of said second roll and said drive means by said first roll to brake said second roll to the speed of said drive means.

7. In a lithographic printing press having a printing plate mounted on a rotatable plate cylinder, inking mechanism for applying ink to the printing plate and a dampening mechanism for supplying dampening fluid to an ink coated form roll running in egagemet with the printing plate, said dampening mechanism comprising a transfer roll running in engagement with said ink coated roll, said transfer roll having an ink accepting surface thereon whereby a coating of ink is formed on said transfer roll during operation of said press, means for supplying dampening fluid to said transfer roll to apply a film of dampening fluod to said transfer roll, and means for driving said transfer roll at a surface speed different from said form roll to control the amount of dampening fluid applied to said plate, said means for driving said transfer roll comprising an unidirectional torque transmitting connection

and means responsive to an overdriving of said connection by said transfer roll for braking said transfer roll including means responsive to a predetermined overrunning torque for performing a control function in addition to the braking of said transfer roll.

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U.S. Cl. X.R.

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