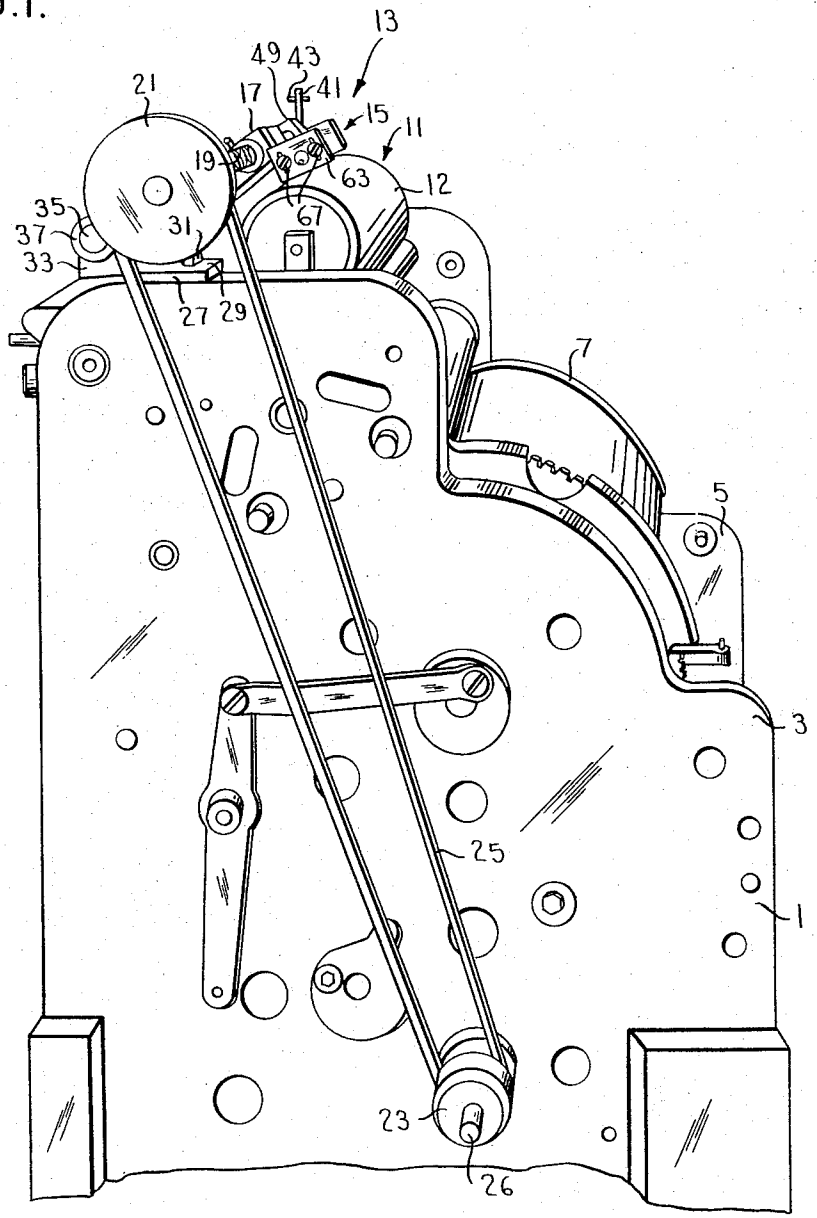
Jan. 3, 1967 J. O. ALLEN 3,295,442

INK ROLL CLEANING ATTACHMENT

Filed Aug. 17, 1964 3 Sheets-Sheet 1

FIG. 1.



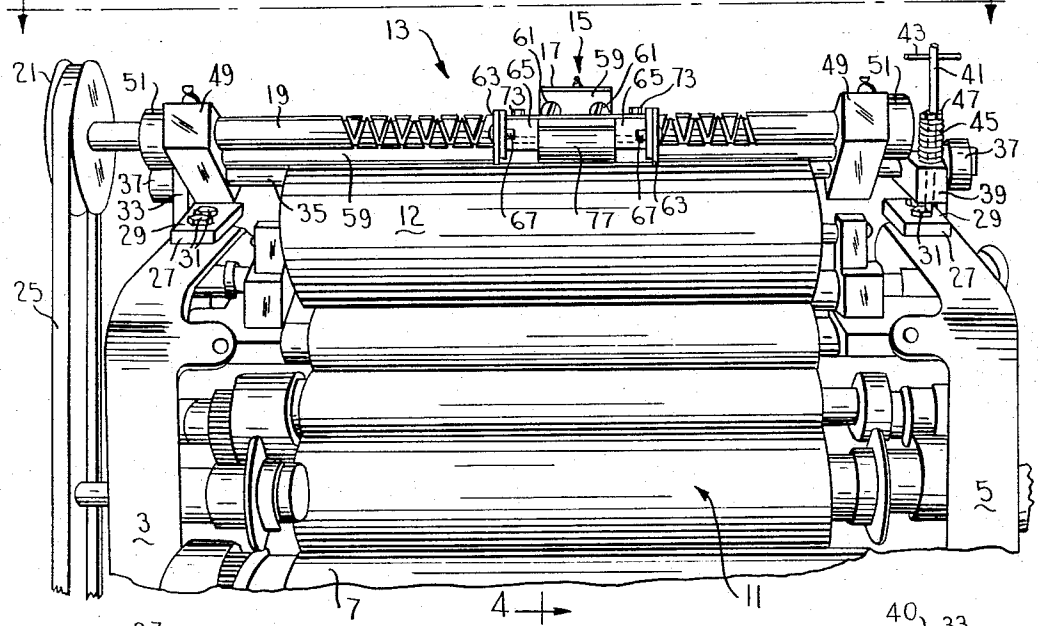
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Inventor.
Koenig, Senniger, Powers and Leavitt,
Attorneys.

Jan. 3, 1967 J. O. ALLEN 3,295,442

INK ROLL CLEANING ATTACHMENT

Filed Aug. 17, 1964 3 Sheets-Sheet 2

FIG. 2.



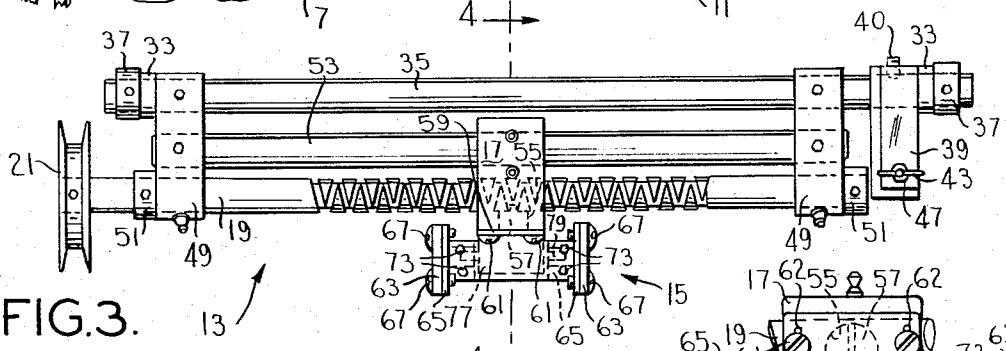


FIG. 3.

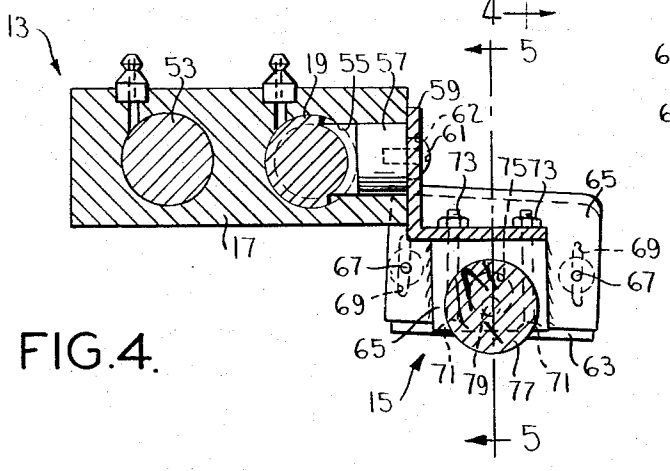


FIG. 4.

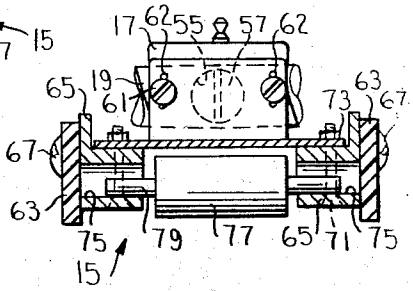


FIG. 5.

INK ROLL CLEANING ATTACHMENT

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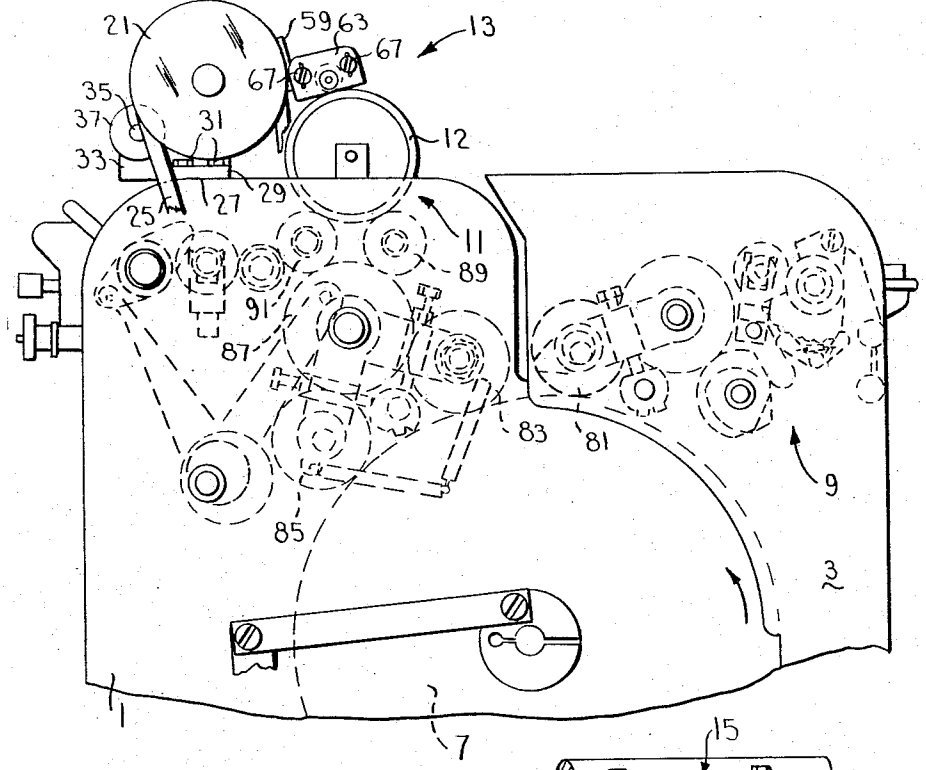


FIG. 6.

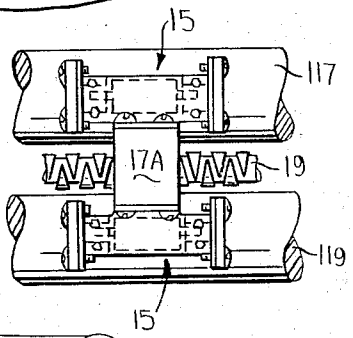


FIG. 9.

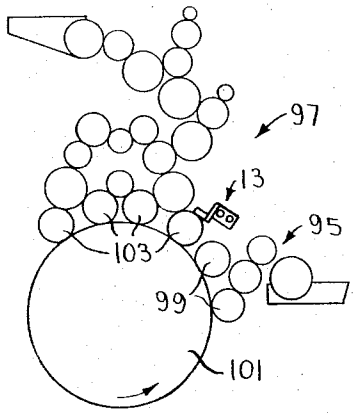


FIG. 7.

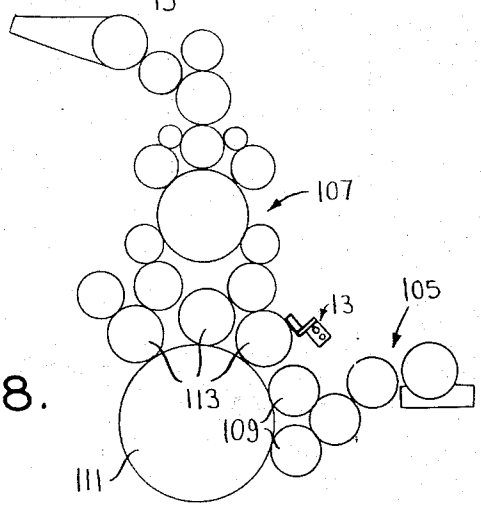


FIG. 8.

United States Patent Office 3,295,442
Patented Jan. 3, 1967

3,295,442

INK ROLL CLEANING ATTACHMENT

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Filed Aug. 17, 1964, Ser. No. 389,937
16 Claims. (Cl. 101—349)

This invention relates to an attachment for a printing press, such as an offset printing press.

When printing with an offset printing press, water rollers of a dampening unit contact the plate cylinder of the press immediately prior to contact of the cylinder by form rollers of the press inking unit, and water or acid from the dampening unit may be transferred from the cylinder to the form rollers. The presence of water or acids on the form rollers prevents proper transfer of ink from the ink fountain to the plate cylinder. This is called "stripping" and results in "dying," i.e. inadequate or spotty transfer of ink to the paper receiving the impression. Following stripping, a thick layer of ink may build upon the ink rollers. When this occurs it is necessary for the pressman to stop the printing press and clean the ink rollers so that ink will be properly transferred from the ink fountain to the plate cylinder. This is time-consuming and thus expensive to the printer. Many prints may be run before the faulty operation is noticed and corrected, particularly when the pressman is required to simultaneously operate several presses. Certain types of printing plates are more subject to stripping of ink from the roller and the subsequent dying than are other printing plates. For example, the Itek printing plate manufactured by the Itek Corporation of Rochester, New York, requires more ink and water than other printing plates used for offset printing, and it is therefore even more subject to stripping and dying. This has limited use of the Itek plate even though the printer realizes a substantial saving by using the Itek plates as compared to producing a plate from a negative in the conventional manner.

Among the several objects of this invention may be noted the provision of an attachment for a printing press of the type described which effectively and automatically prevents stripping and dying; the provision of a printing press attachment which reduces the total time normally required for printing a given job by reducing the time required for cleaning the ink rollers; and the provision of an attachment for printing presses by means of which printing plates requiring an abnormally large amount of water and ink can be used without being subject to the usual stripping and dying. Other objects and features will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the constructions and methods hereinafter described, the scope of the invention being indicated in the following claims.

In the accompanying drawings, in which one of various possible embodiments of the invention is illustrated,

FIG. 1 is a partial view of a conventional printing press having mounted thereon an attachment constructed according to this invention, the dampening unit of the press being omitted for clarity;

FIG. 2 is a fragmentary perspective of the press and attachment of this invention taken from the right side of FIG. 1;

FIG. 3 is a plan view of the attachment per se taken on line 3—3 of FIG. 2;

FIG. 4 is an enlarged section taken on line 4—4 of FIG. 3;

FIG. 5 is a section taken on line 5—5 of FIG. 4 on a smaller scale;

FIG. 6 is an enlarged partial elevation of the FIG. 1 press with the dampening unit in place and showing the relation between the location of the attachment of this

invention and the rollers of the ink and water units of the printing press;

FIG. 7 is a diagrammatic view of another conventional press showing the location of the attachment relative to the ink rollers;

FIG. 8 is a view similar to FIG. 7 showing the location of the attachment relative to the ink rollers on another conventional printing press; and

FIG. 9 is a view showing an attachment of the invention on a platen printing press.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings, a conventional offset printing press shown in FIGS. 1, 2 and 6 comprises a frame **1** having side walls **3** and **5** between which is mounted a plate cylinder **7** having the usual plate and impression segments (not shown). In printing a sheet of paper, the paper receives an image as it passes between the plate cylinder **7** and a blanket cylinder (not shown). The press includes a conventional water unit generally designated **9** in FIG. 6 and an ink unit generally designated **11**. With cylinder **7** rotating in the direction indicated by the arrow in FIG. 6, water from the water unit **9** is transferred to the cylinder **7** immediately before ink from the ink unit **11** is transferred to the cylinder **7**. Some of the water may be picked up by the rollers of the ink unit and prevent proper transfer of the ink between the various ink rollers. Ink unit **11** includes an intermediate ink roller **12**. The attachment of this invention is generally designated **13** and is shown mounted for engagement with roller **12** of the ink unit **11**.

Generally, the attachment **13** comprises an ink distribution member shown generally at **15** which is moved back and forth along the ink roller **12** by a supporting carrier **17**. The carrier **17** rides along a double-screw shaft **19** when the shaft is turned. On one end of the double-screw shaft **19** is a pulley **21** which is driven via a pulley **23** (FIG. 1) and a belt **25**. The pulley **23** is attached to a shaft **26** driven by the drive means (not shown) of the printing press. The attachment **13** is mounted on the frame **1** of the printing press by supports generally designated **27** which are shown attached to the upper edges of the sides **3** and **5** of the frame. When the printing press is operating, pulley **23** is rotated, which in turn drives pulley **21** and the double-screw shaft **19** for moving the ink distribution member **15** and carrier **17** back and forth along the ink roller **12**. During movement of the ink distribution member, ink and other materials on the roller **12** which are transferred by ink unit **11** to plate cylinder **7** are distributed back and forth along the roller. This prevents localized build-up on roller **12** of water or acid which causes stripping and dying, and also prevents build-up of a thick layer of ink on the roller.

More particularly, each support **27** comprises a plate **29** attached to frame sides **3** and **5** by screws **31**. Extending upwardly from each plate **29** is an ear **33** through which a pivot rod **35** projects. Collars **37** on the ends of the rod engage the ears **33** to prevent axial movement of the rod.

Affixed to the right end of rod **35** is an arm **39** (FIGS. 2 and 3). Arm **39** is attached to rod **35** by a set screw **40** which permits angular adjustment of the rod relative to the arm. When the attachment is transferred from one printing press to another, substantial angular adjustment of rod **35** may be required, and this adjustment is easily achieved by loosening set screw **40**, moving the rod **35** (or arm **39**), and tightening screw **40**. Fine or small adjustments may be achieved by an adjustable stop screw **41** which is threaded in the outer end of arm **39** and has its lower end engaging the respective plate **29**. Screw **41** is

adjustable by turning a handle 43 which passes through its upper end. Adjustment of screw 41 moves arm 39 for changing the angular position of rod 35 which determines the location of the ink distribution member 15 relative to roller 12. A coil spring 45 reacts from arm 39 against a nut 47 on screw 41 for preventing inadvertent rotation of screw 41 due to vibration of the press, etc.

Attached to the rod 35 between the ears 33 and near the ends of the rod are two bearing blocks 49. The double-screw shaft 19 passes through and rotates in the bearing blocks 49 and is held in place by collars 51 on the ends of the shaft which engage the bearing blocks. Spanning the bearing blocks 49 between the rod 35 and double-screw shaft 19 is a guide rod 53 which passes through the carrier 17 for guiding the carrier back and forth.

The shaft 19 passes transversely through the carrier 17 and has a right-hand screw groove and a left-hand screw groove. The carrier 17 is provided with a lateral hole 55, FIG. 4, in which a follower pin 57 is located. The follower 57 rides in the grooves in shaft 19 and is rotatable in hole 55 so that it will shift from the left-hand groove to the right-hand groove and vice versa upon reaching the ends of the grooves. Follower 57 is held in engagement in the grooves of shaft 19 by one leg of an angle bracket 59 mounted on carrier 17 by screws 61 passing through holes 62 (FIGS. 4 and 5) in the angle bracket. Holes 62 are preferably formed as elongate slots to provide for tilting and up and down adjustment of the angle bracket and the ink distribution member 15 which is supported by the other leg of the angle bracket.

Ink distribution member 15 is shown to comprise two spaced generally rectangular scrapers 63 attached to scraper supports 65 by screws 67. The scrapers 63 have elongate vertical slots 69 through which screws 67 pass, the slots permitting individual vertical adjustment of the scrapers 63. Scrapers 63 may be made of plastic materials, etc.

The scraper supports 65 are attached to the lower side of angle bracket 59 by bolts 71 and nuts 73. Each scraper support 65 has a relatively large cylindrical hole or opening 75 (FIGS. 4 and 5). Disposed between the scraper supports 65 is a roller 77, preferably a wooden roller, which is substantially shorter than the rollers of ink unit 11. The axis of roller 77 is preferably parallel to the axis of ink roller 12, and this relation is obtained by adjusting angle bracket 59 on carrier 17. This adjustment and adjustment of scrapers 63 may be made while the ink distribution member engages roller 12 or, if desired, belt 25 can be released from pulley 21 and the attachment swung about rod 35 for moving the ink distribution member away from roller 12.

Trunnions 79 project from the ends of the roller 77 into the holes or openings 75 in the scraper supports, these trunnions being substantially smaller in diameter than the holes or openings so that the roller 77 is loosely mounted and can float between the scraper supports. When the scrapers 63 are placed into engagement with ink roller 12, roller 77 lightly rests on the ink roller.

Operation of the attachment of the invention is as follows:

With the attachment 13 mounted on the frame 1, the ink distribution member 15 is placed in engagement with roller 12 of the ink unit 11 by adjustment of the stop 41 which moves the ink distribution member as a whole toward or away from the roller 12. The ink distribution member 15 can be tilted to provide the desired axial alignment of roller 77 and roller 12 by loosening screws 61 which hold the angle bracket 59 on the carrier 17 and tilting the ink distribution member to obtain the desired relation between it and the roller 12. The scrapers 63 are individually adjusted for engagement with roller 12 by loosening bolts 67 and moving the scrapers relative to their supports 65. The scrapers are adjusted to engage and lightly scrape ink, water and the like from the roller 12. Roller 77 engages roller 12 and preferably is located so that it can float up or down if necessary. The printing press is started and the drive means for the printing press turns belt 25 and pulley 21 which in turn drives the double-screw shaft 19. Follower 57 in carrier 17 is in register with the groove in the shaft 19 and causes the carrier to move back and forth along the length of the shaft 19, it being understood that the follower 57 rotates to reverse the movement of carrier 17 from left to right and right to left when the follower engages the ends of the grooves in shaft 19. As the carrier 17 is moved back and forth, it carries with it the ink distribution member 15 which moves back and forth along roller 12 while it is rotated by the drive means of the printing press. Scrapers 63 pick up and redistribute ink along the roller 12. The roller 77 tangentially engages roller 12 and is turned by roller 12 for lightly compacting or pressing the loosened ink against the roller 12. The ink distribution member will have contacted substantially the entire surface of roller 12 after it has made several passes along the roller. By redistributing ink back and forth along the roller 12, any tendency of water, acid or ink to build up on a portion of the roller 12 is prevented. While the press is operated, ink is continuously being transferred from roller 12 to other rollers of the ink unit 11 and eventually to the cylinder 7 in the usual manner. By eliminating accumulation of water, acids or ink on the roller 12, stripping of the rollers and the resulting dying is prevented.

The exact manner in which the action of scrapers 63 and roller 77 prevents stripping and dying is not fully understood, but, in any event, the attachment so functions.

The arrangement of the rollers for water unit 9 and ink unit 11 is best shown in FIG. 6 of the drawings. Water from water unit 9 is transferred through the series of rollers shown to a roller 81 which engages cylinder 7 and dampens the cylinder. As cylinder 7 rotates in the direction shown by the arrow in FIG. 6, water or moisture deposited on cylinder 7 is placed in engagement with the form rollers 83 and 85 of the ink unit 11 which contact cylinder 7 immediately after it passes the water unit. Some of this water may be picked up by form rollers 83 and 85 and transferred through ink roller 87 to rollers 89 and 91 which are in contact with the ink roller 12. Thus there is a path through the ink unit 11 by means of which water or acid can be transferred from cylinder 7 to roller 12. Mounting of attachment 13 for engagement with roller 12 properly distributes ink on the roller 12 and this ink is transferred through rollers 89 and 91 and through roller 87 to the form rollers 83 and 85 to prevent the build-up of water, acids and the like on the form rollers which would prevent proper inking of plate cylinder 7.

The printing press of FIGS. 1, 2 and 6 is a conventional press and has only two form rollers 83 and 85. Where only two form rollers are present it is preferred to mount the attachment above the form rollers in the series of ink rollers since scraping of ink on one of only two form rollers may result in inadequate transfer of ink to the plate cylinder 7. While the attachment is shown mounted on the top roller 12 of the ink unit 11, it will be understood that the attachment could be mounted for engagement with rollers 87, 89 or 91 if this mounting could be achieved without interfering with operation of the press.

Where the press has more than two form rollers, it is preferred to mount the attachment 13 so that it engages the lead form roller, that is, the form roller which engages the plate cylinder after the cylinder passes the water unit. FIGS. 7 and 8 illustrate mounting of the attachment on lead form rollers where more than two form rollers are present. In FIG. 7, the water unit 95 and an ink unit 97 of a conventional printing press is shown. Water from water unit 95 is transferred by two

rollers **99** to the plate cylinder **101** and the four form rollers **103** of the ink unit **7** transfer ink to the cylinder **101**. The attachment **13** is shown mounted for contacting the lead form roller **103**. FIG. 8 shows a water unit **105** and an ink unit **107** of another conventional press. Water rollers **109** transfer water to the plate cylinder **111** and three form rollers **113** of ink unit **107** transfer ink to the plate cylinders. The attachment **13** is shown mounted for contacting the lead form roller. If the construction of the printing press is such that the attachment cannot be conveniently mounted for engagement with the lead form roller, even though there are more than two form rollers, then the attachment is mounted for engagement with a roller higher in the ink unit than the form rollers but is preferably located as close as possible to the lead form roller.

FIG. 9 shows an attachment of the invention mounted on a platen type printing press having ink rollers **117** and **119** which engage and ink the printing plate (not shown) in the usual manner. Two ink distribution members **15** are mounted on the carrier **17***a* (one on each end) and simultaneously engage both ink rollers **117**, **119**. Double screw shaft **19** is driven in any suitable manner to reciprocate the carrier **17***a* for moving the ink distribution members longitudinally along the ink rollers to prevent build-up of ink on the rollers.

While the attachment of the invention is shown mounted on conventional offset and platen printing presses, it is to be understood that the invention may be used on other types of presses to prevent accumulation or build up of water, acids or ink from the rollers.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above constructions and methods without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. An attachment for a printing press having a frame, a cylinder rotatably mounted on the frame, and a plurality of elongate water and ink rollers carried by the frame for applying water and ink to portions of the cylinder; said attachment comprising an ink distribution member, means mounted on the frame and supporting the ink distribution member, and means for moving the ink distribution member longitudinally back and forth along one of the ink rollers of the printing press substantially parallel to the axis of the roller whereby ink is distributed along the length of said ink roller, the ink distribution member comprising a scraper having an edge portion located in a plane transverse to the length of said one of the ink rollers of the printing press and engaging said one of said rollers for loosening ink from said one of the ink rollers.

2. An attachment for a printing press as set forth in claim **1** wherein the ink distribution member further comprises a roller following the scraper for engaging and pressing the loosened ink against said one of said ink rollers.

3. An attachment for a printing press having a frame, a cylinder rotatably mounted on the frame and a plurality of elongate water and ink rollers carried by the frame for applying water and ink to portions of the cylinder, and drive means for rotating the cylinder and rollers; said attachment comprising an ink distribution member for redistributing ink along one of the ink rollers of the press, the ink distribution member comprising a scraper having an edge portion located in a plane transverse to the length of said one ink roller and engaging said one ink roller for loosening ink from said one ink roller, the ink distribution member being substantially shorter than said one of the ink rollers, means supporting the ink distribution member on the frame, a drive for the attachment including a double-screw shaft for moving the ink distribution member back and forth along said one of the ink rollers of the press in a path substantially parallel to the axis of said ink roller whereby ink is redistributed along the length of said ink roller after several passes by the ink distribution member.

4. An attachment for a printing press as set forth in claim **3** wherein the means supporting the ink distribution member on the frame includes adjusting means for moving the ink distribution member as a whole toward and away from said one printing press ink roller.

5. An attachment for a printing press as set forth in claim **3** wherein the attachment drive is connected to the drive means for the printing press for simultaneous operation of the press and the attachment.

6. An attachment for a printing press as set forth in claim **3** further including a carrier movable along the double-screw shaft and supporting the ink distribution member.

7. An attachment for a printing press as set forth in claim **6** further including a groove follower carried by said carrier for engagement in the grooves of said shaft whereby the carrier and ink distribution member are moved back and forth by rotation of the shaft.

8. An attachment for a printing press having a frame, a cylinder rotatably mounted on the frame and a plurality of elongate water and ink rollers carried by the frame for applying water and ink to portions of the cylinder, and drive means for rotating the cylinder and rollers; said attachment comprising an ink distribution member for redistributing ink along one of the ink rollers of the press, the ink distribution member being substantially shorter than said one of the ink rollers, means supporting the ink distribution member on the frame, a drive for the attachment including a double-screw shaft for moving the ink distribution member back and forth along said one of the ink rollers of the press in a path substantially parallel to the axis of said ink roller whereby ink is redistributed along the length of said ink roller after several passes by the ink distribution member, said ink distribution member comprising two ink scrapers in planes substantially perpendicular to the axis of said one printing press roller, said scrapers being individually adjustable toward and away from said one of the ink rollers.

9. An attachment for a printing press as set forth in claim **8** wherein the ink distribution member further comprises an elongate roller between the scrapers mounted for limited movement toward and away from said one printing press roller independently of the movement of the scrapers.

10. An attachment for a printing press as set forth in claim **8** wherein the means supporting the ink distribution member on the frame includes adjusting means for moving the ink distribution member as a whole toward and away from said one printing press ink roller.

11. A method for preventing accumulation of water and acid on an elongate ink roller of a printing press or the like comprising the steps of rotating the roller, redistributing ink along the roller by scraping the ink on the roller in a generally axial direction and placing a second roller in contact with the ink roller and moving it axially along the ink roller for pressing ink against the ink roller, the second roller having an axis substantially parallel to the axis of the ink roller and tangentially contacting the ink roller, the second roller being rotated by contact with the ink roller.

12. An attachment for a printing press having a frame, a cylinder rotatably mounted on the frame, and a plurality of elongate water and ink rollers carried by the frame for applying water and ink to portions of the cylinder; said attachment comprising an ink distribution member, means mounted on the frame and supporting the ink distribution member, means for moving the ink

distribution member longitudinally back and forth along one of the ink rollers of the printing press substantially parallel to the axis of the roller whereby ink is distributed along the length of said ink roller, the ink distribution member comprising two spaced ink scrapers each individually adjustable toward and away from said one of the printing press ink rollers, and a roller mounted between the scrapers for engaging ink loosened by the scrapers and rolling the loosened ink against said one of the ink rollers.

13. An attachment for a printing press as set forth in claim **12** wherein the roller of the ink distribution member is substantially shorter than said one of the printing press ink rollers and is loosely mounted for movement toward and away from said one of the printing press ink rollers.

14. An attachment for a printing press having a frame, a cylinder rotatably mounted on the frame and a plurality of elongate water and ink rollers carried by the frame for applying water and ink to portions of the cylinder, and drive means for rotating the cylinder and rollers; said attachment comprising an ink distribution member for redistributing ink along one of the ink rollers of the press, the ink distribution member being substantially shorter than said one of the ink rollers, means supporting the ink distribution member on the frame, a drive for the attachment including a double-screw shaft for moving the ink distribution member back and forth along said one of the ink rollers of the press in a path substantially parallel to the axis of said ink roller whereby ink is redistributed along the length of said ink roller after several passes by the ink distribution member,

a carrier movable along the double-screw shaft and supporting the ink distribution member, a groove follower carried by said carrier for engagement in the grooves of said shaft whereby the carrier and ink distribution member are moved back and forth by rotation of the shaft, and a guide rod adjacent and parallel to the shaft, said carrier being slidable along said rod.

15. In a printing press having an ink roller, an ink distribution member mounted for reciprocation longitudinally of the ink roller while in contact with the ink roller, means for reciprocating the ink distribution member back and forth along the ink roller, said ink distribution member comprising a pair of scrapers spaced apart longitudinally of the ink roller, and a roller extending between the scrapers contacting the ink roller.

16. In a printing press as set forth in claim **15**, said last-named roller being floatingly mounted relative to the scrapers.

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