Feb. 5, 1952 R. C. DELAPLANE 2,584,380

WATER CONTROL ROLLER FOR OFFSET PRESSES

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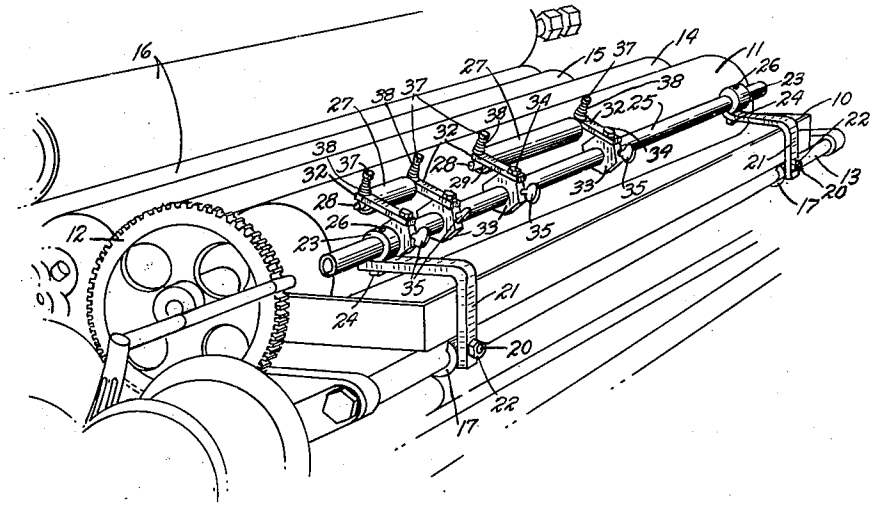


FIG. 1

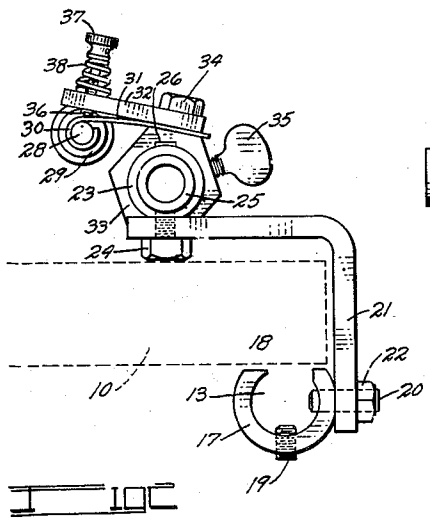


FIG. 2

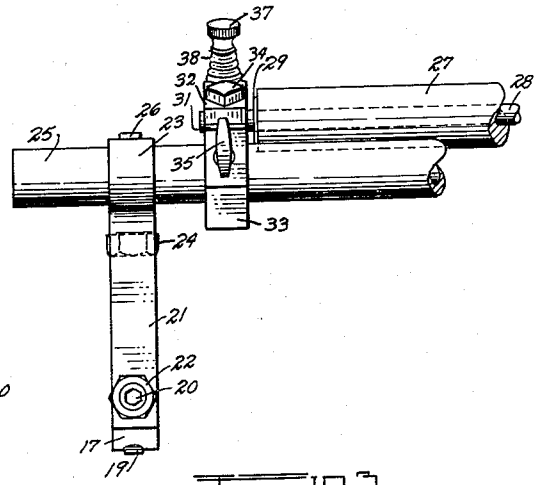


FIG. 3

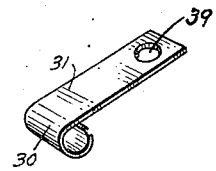


FIG. 4

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WATER CONTROL ROLLER FOR OFFSET PRESSES

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4 Claims. (Cl. 101—148)

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This invention relates to a water control roller for lithographic presses of the offset type, and more particularly to the type of water control roller illustrated and described in applicant's Patent No. 2,162,248, issued June 13, 1939.

It is very seldom, if ever, that the particular job on the lithographic presses overlies the entire surface of the printing plate or roll and it is therefore desirable to retard the water from being applied to the non-printing portion of the roll, since these portions will accumulate the water until it will run or spread over the printing area to interfere with the efficient offsetting of the latter.

The principal object of this invention is to provide a control roll which can be readily adjusted along and against any desired portion or portions of the water fountain roller of the press so as to act as a wringer or squeegee to roll back the water or solution from the portions which are to be applied outside the printing surface.

Another object of the invention is to so construct the roller and its support that it can be quickly and easily changed to cover various widths of surfaces and so that it can be accurately regulated to contact with any desired pressure at any point throughout its length.

While the invention is particularly designed for reducing or limiting the water on the unused portions of the plate, it is so accurately adjustable that it can be used to control the uniformity of the water or solution over the printing surface of the plate.

The usual dampening rollers of an offset press are covered with a fabric, such as molleton, wrapped over a flannel undercovering. It is, of course, impossible to place these coverings with an absolute even and uniform surface. Therefore, certain portions of the dampening roll will carry too much water or solution to the plate. This excess water must be controlled in order to obtain uniformly perfect lithographing. With this invention, the water at any portion of the plate can be accurately controlled to obtain a uniform dampening of the entire plate surface.

A further object is to so design the control so that it will occupy but a minimum of space and will not interfere in any way with the operation of the press or with access to the water pan thereon.

The water control roller illustrated in the said patent had several objectionable features. It was difficult to install upon every type of standard lithographic press; it was impossible with the former construction, to obtain the delicate adjustment of pressure necessary for accurate water control; and it was impossible to position adjacent rollers sufficiently close together to prevent a water streak therebetween.

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A still further object of this invention is to provide a water control roller for offset presses which can be applied to any of the standard types of presses, without requiring any changes or machine work on the latter; which will allow a very delicate and minute pressure control to be had; which will allow the rollers to be placed sufficiently close together to cover a large area without water streaks showing between the rollers; and which will not interfere with the operation of the press in any way.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a fragmentary, perspective view, illustrating a portion of an offset lithographic press, illustrating the invention in place thereon;

Fig. 2 is an enlarged end view of the improved water control roller device;

Fig. 3 is a similarly enlarged, fragmentary, front view of one extremity of the improved control roller device; and

Fig. 4 is a detail, perspective view, illustrating a bearing spring employed in the improved water control roller.

In Fig. 1 the usual water pan of a lithographic press is indicated at 10, with the water fountain roll at 11, fountain roll drive at 12, and water pan supporting bar at 13. The fountain roll 11 rotates partially submerged in the water in the pan 10 and is covered with a suitable fabric to absorb water from the pan. The water is intermittently transferred from the fountain roll 11 to a ductor roll 14, which in turn transfers it to water distributing rolls 15. The distributing rolls transfer the water to a pair of dampening rolls 16 which are in contact with the printing plate of the plate cylinder of the press.

This invention is designed to be applied to the water pan supporting bar 13. On most presses the water pan 10 rests directly on the bar 13 so that it is impossible to place a sleeve or collar around this rod for supporting water control

rollers. In other presses the mechanism at each end of the pan 10 prevents placing a supporting bracket at the ends of the pan.

In this invention these difficulties are avoided by employing an open collar 17, the top of which is cut away, as indicated at 18, so that when placed on the pan-supporting bar 13 it will not extend above the upper surface thereof to interfere with the pan supported thereon. This allows the pan 10 to rest directly on the bar 13, as shown in Fig. 2, and still allows the collar 17 to surround the major portion of the bar. The collar is locked to the bar 13 by means of two hollow, headless set screws, a bottom set screw 19 and a side set screw 20. The two screws 19 and 20 adapt the collar to rods of various diameters.

The lower extremity of an inverted L-shaped supporting bracket 21 is slipped over the projecting portion of the set screw 20 and is locked in place thereon by means of a lock nut 22 which is threaded on the threads of the set screw 20.

In applying the roller to a press, two of the collars 17, each carrying one of the brackets 21, are positioned on the pan-supporting bar 13 beneath the pan 10 so as to extend upwardly on the front side, thence rearwardly over the top thereof, as illustrated in Fig. 1.

Each of the supporting brackets 21 carries a cylindrical sleeve 23 which is secured thereto by means of a suitable cap screw 24. A length of brass pipe 25 is passed through both sleeves 23, and is locked against rotation in the sleeves 23 by means of suitable set screws 26.

The improved water control rollers are supported from the pipe 25. They can be moved along this pipe to any desired positions thereon, depending upon the size and position of the printing area on the printing plate. The rollers are made in various lengths, and can be used in any desired multiples, depending upon the particular job in hand.

As illustrated in Fig. 1, two of the control rollers, indicated at 27, are shown in place. Each roller consists of a length of relatively thick, soft rubber tubing, designated by the numeral 27, mounted on a roller shaft 28 and positioned between end washers 29 forced thereon. The extremities of the shaft 28 project beyond each extremity of the rubber tubing 27.

The extremities of the roller shaft 28 are received in tubular bends 30 formed on the extremities of flat, elongated, leaf-type roller springs 31 provided with an attachment hole 39. Each roller spring 31 is clamped between a spring arm 32 and a hexagonal pipe block 33, through which the pipe 25 passes. The spring arms 32 are clamped to the blocks 33 by means of suitable cap screws 34 which pass through the holes 39 in the springs 31. The hexagonal blocks 33 are locked against rotation on the pipe 25 by means of thumb-type set screws 35.

A spring-adjusting screw 36 provided with a knurled head 37, is threaded through each of the arms 32 directly over the tubular bends 30 in the springs 31. Tightening of the screws 36 will cause their points to bear against the springs 31, forcing the extremities of the roller shaft 28 away from their arms 32. The screws 36 are retained in any pre-set position by means of helical locking springs 38 which surround the screws and frictionally engage the heads thereof.

Let us assume that the job on the printing plate covers the full width of the press rollers except for a relatively narrow band adjacent the left extremity and a relatively wide band adjacent the center. To prevent excess water from spreading on these areas, a relatively short roller 27 is positioned adjacent the vacant area at the left, and a relatively long roller 27 is positioned opposite the vacant center area, as shown in Fig. 1. The rollers are brought to rest against the fabric of the water roll 11, and the hexagonal blocks 33 are locked in place by means of the set screws 35.

The screws 37 are now adjusted while the press is operating, to obtain the exact uniform squeezing or wringing action desired on the roll fabric. This adjustment can be made with micrometric accuracy by means of the screws 37 to obtain perfect water control.

It is to be understood that the position of the rollers, the length of the latter, and the number thereof can be readily varied to suit the particular job being run. It will be noted that the arms 32 and the blocks 33 are relatively narrow so that two rollers can be positioned closely adjacent each other so as to prevent a damaging water streak therebetween.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A water control roller for a lithograph press comprising: a pair of block members; a shaft passing through both block members; means for preventing rotation of said members on said shaft; an arm extending forwardly from each of said block members; a leaf spring clamped between each block member and its arm and extending longitudinally of and below said arm; a cylindrical loop integrally formed in the extremity of each spring; a resilient roller rotatably journalled in said loops and extending between said springs; and means for urging said springs away from their adjacent arms.

2. A water control roller for a lithograph press comprising: a pair of block members; a shaft passing through both block members; means for preventing rotation of said members on said shaft; an arm extending forwardly from each of said block members; a leaf spring clamped between each block member and its arm and extending longitudinally of and below said arm; a cylindrical loop integrally formed in the extremity of each spring; a resilient roller rotatably journalled in said loops and extending between said springs; and a spring-adjusting screw threaded through each arm into contact with the adjacent spring to prevent flexure of the latter and for varying the spacing between said spring and said arm.

3. A water control roller for lithograph presses comprising: a roller shaft; a tubular, resilient roller surrounding said roller shaft intermediate the extremities thereof; a resilient bracket supporting each extremity of said roller shaft; a block member secured to each resilient bracket; a pipe extending through both block members; means for locking said block members at any desired position on said pipe; a supporting sleeve surrounding said pipe adjacent each extremity thereof; an inverted, L-shaped bracket member extending outwardly and downwardly from each sleeve; a clamping collar secured on the lower extremity of each bracket and adapted to re-

ceive said pan-supporting rod, the upper portions of said collars being cut away so that they will not extend above the top of said rod; and set screws in said collars for locking the latter to said rod.

4. Means for adjustably supporting a water control roller on a lithographic press comprising: a pair of spaced-apart blocks; means for attaching said blocks to said press; a rigid arm secured on a flat surface of each block and extending sidewardly therefrom parallel to each other; a flexible strip clamped between each arm and its adjacent block and extending longitudinally beneath the adjacent arm; a loop formed integrally from each strip at the extremity thereof; a roller shaft having its extremities mounted in said loops and extending therebetween; a water control roller on said shaft; and means for forcing

the extremities of said flexible strips away from said arms to adjust the position of the roller extremities.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,364,257	Dobbertin	Jan. 4, 1921
2,162,248	Delaplane	June 13, 1939
2,340,327	Jagger et al.	Feb. 1, 1944

FOREIGN PATENTS

Number	Country	Date
601,883	Great Britain	May 13, 1948