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R. E. WHITE

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DAMPENING MECHANISM FOR ROTARY PLANOGRAPHIC PRINTING PRESSES

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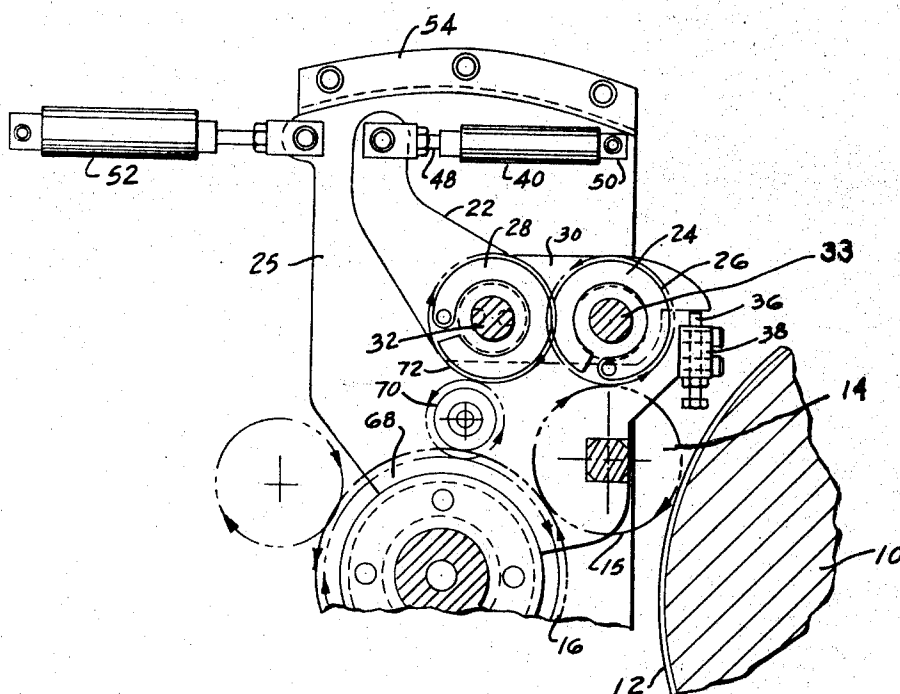


FIG.-1

INVENTOR.
RAYMOND E. WHITE

BY
MORGAN, FINNEGAN, DURHAM & PINE
ATTORNEYS

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DAMPENING MECHANISM FOR ROTARY PLANOGRAPHIC PRINTING PRESSES

Raymond E. White, Wayzata, Minn., assignor to Bemis
Company, Inc., a corporation of Missouri
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ABSTRACT OF THE DISCLOSURE

The invention provides a new and improved dampening and inking mechanism for rotary planographic printing presses in which a pair of rollers in contact with each other have resilient dams at the ends of the rollers to form a dampening fluid trough, one of the rollers running in contact with a form inking roller to supply moisture to the form roller. The dampening mechanism is mounted on pivoted arms and the form-engaging roller and the pivoted arms are mounted on pivoted members which are movable into and out of contact with a blanket cylinder, and the form-engaging roller always runs in contact with an ink supply roller.

The present invention relates to a novel and improved dampening mechanism for rotary planographic web printing presses, especially such presses as are built for multi-color web printing.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate one form of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:

FIGURE 1 is a schematic side elevation, with certain parts in section, of a dampening mechanism in accordance with the present invention, and showing the relation of the dampening mechanism to certain portions of the inking and printing mechanism of a planographic web printing press, the view being taken from one end of the mechanism and inside a side frame of the printing press;

FIGURE 2 is a fragmentary top elevation, partly in section, showing in detail a portion of the mechanism illustrated in FIGURE 1; and

FIGURE 3 is a sectional view taken on the line 3-3 of FIGURE 2.

The present invention has for its object the provision of a simple and improved dampening mechanism which is especially adapted for use in connection with a multicolor, web, planographic offset printing press. The invention has for a further object the provision of a dampening mechanism which is exceedingly compact and is especially adapted for use with web offset printing presses for printing in a plurality of colors, such as six colors, where there is a minimum of available space between the various printing couples for the mounting of the dampening and inking mechanisms.

The present invention provides a simple and compact dampening mechanism which is movable into and out of operative contact with the printing mechanism and which comprises a pair of adjacent rotatable rollers, rotatable in contact with each other and providing between them a horizontal trough in which water or other dampening

liquid may be retained as it is fed to the printing system. For closing the ends of the trough, resilient dam members, preferably formed of relatively dense, resilient felt, shaped to overlap the end surfaces of the rollers at the trough, are provided and are resiliently urged against the flat ends of the rollers. For resiliently pressing the dam members against the roller ends, there are provided at each end of the rollers metal members each of which is rotatably mounted on one of the roller shafts and is pressed by a spring towards the roller, the inner face of the metal member having the felt member secured thereto.

One of the rollers is preferably formed of rubber, while the roller which is to engage the form inking roller is preferably formed with a metal, water-receptive surface, such as chrome.

Fluid-pressure actuated means are also provided, and the rollers are mounted in a pivoted arms so that the metal roller may be readily and rapidly brought into and out of contact with the form inking roller, suitable stop means being provided for adjustably limiting the pressure to be exerted between the metal dampening roller and the first form inking roller.

It will be understood that the foregoing general description and the following detailed description as well are exemplary and explanatory of the invention but are not restrictive thereof.

As illustratively embodied in the present preferred embodiment of the invention, the dampening mechanisms is shown as applied to a web-fed planographic printing press in which the dampening fluid is fed by an applicator roller to the first of a plurality of form inking rollers which run in contact with a vibrator drum of an inking mechanism as well as in contact with the surface of the planographic plate to be inked. Thus water is supplied to the inking system and is promptly fed to the surface of the plate, after which the plate is again inked by one or more subsequent form rollers. Suitable means are also provided for moving the moisture applicator roller into and out of contact with the form roller. When out of contact, the form rollers would normally be moved out of contact with the surface of the planographic form or plate on the form cylinder 10 but not out of contact with vibrator 16.

As shown in detail in the accompanying drawing, only a portion of a substantially conventional inking mechanism is shown in combination with the novel dampening mechanism of the present invention. Form cylinder 10 is provided with a conventional planographic printing plate 12, and is adapted to be inked and to transfer its ink image either to an offset cylinder or to the surface of a web moving through the printing press.

In the normal printing operation of the press, ink is supplied to the surface of the printing plate 12 by contact with a form roller 14, usually having a resilient covering 15, and rolling in light pressure contact with the plate 12, being supplied with ink from a vibrator roll 16, which in turn receives its ink supply from a conventional inking system including an ink fountain, not shown.

The dampening mechanism comprises a pair of freely rotatable rollers 24 and 28 having shafts 32 and 33 which are journaled at their ends by bearings 31' and 31 in arms 22 each of which is pivoted on a plate 25 pivotally mounted on side frames of the press. Applicator roller 24 is preferably provided with a water receptive covering 26, and runs in contact with the surface of a resiliently covered roller 28, the rollers being pressed together so as to cause some deformation of the resilient covering 28, thereby providing a substantially water-tight trough space 30 between the two rollers above their line of contact.

Arms 22, one at either end of the rollers 24 and 28, are mounted for pivotal movement to bring the surface of the

roller 24 into and out of contact with the surface of the form roller 14, and arms 22 are preferably rotated about the center of shaft 32 of roller 28 also pivoted by bearing 35 in plate 25. Stop means are provided for limiting the movement of the arms 22 and roller 24 towards the form roller 14, and for this purpose adjustable stop screws 36 are threaded in brackets 38 fixed to the plate 25, the screws being adapted to be engaged by the ends of the arms 22.

Double acting fluid pressure motor means are preferably provided for remotely controlling the movement of the arms 22 and the roller 24 into and out of engagement with the form roller 14, and for this purpose the upper end of the arms 22 are each connected to fluid pressure operated motors comprising a double ended cylinder 40, provided with fluid pressure connections through which fluid under pressure may be introduced into one end of the cylinder or the other. Within the cylinder 40 is a piston connected to a piston rod 48 which is pivotally connected to the upper end of arm 22, while the other end of the cylinder 40 is provided with an eye 50 by which it is pivotally made fast to the plate 25 on the corresponding side of the press frame. When fluid pressure is supplied to one end of motor 40, arms 22 are moved in a clockwise direction about shaft 32 as a pivot, bringing the other end of the arms into contact with their stop screws 36, and also bringing the surface of the roller 24 into contact with the surface of the form roller 14. Release of the fluid pressure or application of fluid pressure causes a reverse motion of the arms 22, thereby disengaging the applicator roller from its engagement with the form roller 14, thereby allowing the printing press to rotate without application of moisture to the form roller 14. Plates 25 are mounted for pivotal movement about the shaft center of drum 16 so as to move the roller 14 into and out of contact with the plate 12 and for this purpose double-acting fluid pressure motors 52 are connected to plates 25 and to the press side frames (not shown) to pivot the plates 25 which also carry levers 22 and rollers 24 and 28. The upper arcuate edge of each plate 25 is guided in a track member 54 secured to the side frame of the press.

For retaining water or other moistening fluid within the trough space 30, two dams are provided, one at either end of the trough space 30 and each of them comprises a relatively thick piece of dense felt 60, securely mounted on a metal plate 62 and shaped to cover the end of the water-receiving trough space 30. Felt 60 may be adhesively or mechanically secured to the face of the metal plate.

The metal plates 62 are freely rotatable on the shaft 33 for roller 24 and are pressed towards its respective end of rollers 24 and 28 by coil spring 64 compressed between the bearings 34 and 31'. Plate 62 is held against rotation and in the proper position by means of a stop pin 66 projecting from pivoted arm 22. The felts 60

pressed snugly against the flat smooth ends of the rollers 24 and 28 seal the end of the water trough 30.

Roller 28 is driven at a relatively slow speed from a slow gear 68 rotatable on the shaft of drum 16 (which is driven at a higher speed) through idler pinion 70 meshing with a gear 72 on one end of roller shaft 32.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What is claimed is:

1. A dampening mechanism for rotary planographic printing presses including in combination a pair of rotatable rollers forming a horizontal trough between them for the reception of a dampening fluid, one of said rollers running in contact with a form inking roller to apply moisture to the form roller, resilient dams at the ends of the pair of rollers and urged towards the ends of the rollers to close the space above the bite of the rollers to maintain a reservoir of dampening fluid in the space defined by the rollers and the dams, the pair of rollers being mounted on pivoted arms and the form-engaging roller and said pivoted arms being mounted on pivoted members moving into and out of contact with a plate cylinder, said form-engaging roller always running in contact with an ink supply roller.

2. A dampening mechanism as claimed in claim 1 in which fluid pressure motor means are provided for moving the arms, and the arms are pivoted about the roller which does not contact with the form inking roller.

3. A dampening mechanism for rotary planographic printing presses including in combination a pair of rotatable rollers forming a horizontal trough between them for the reception of a dampening fluid, each of said rollers having flat end portions, one of said rollers running in contact with a form inking roller, to apply moisture to the form roller, resilient dams located at the ends of the pair of rollers and resiliently urged into engagement with the flat end portions thereof to close the space above the bite of the rollers to maintain a reservoir of dampening fluid in the space defined by the rollers and the dams.

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ROBERT E. PULFREY, *Primary Examiner*.

E. S. BURR, *Assistant Examiner*.