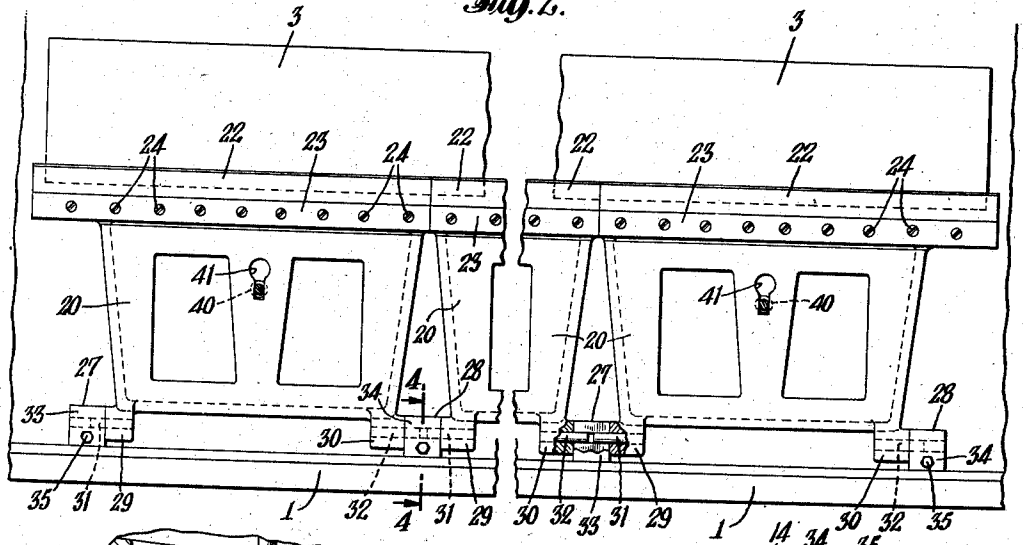
Aug. 19, 1941. E. W. WORTHINGTON 2,253,158

ROTARY PRINTING PRESS INK FOUNTAIN

Filed May 1, 1939

Fig. 2.



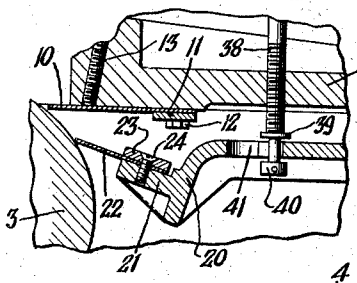


Fig. 3.

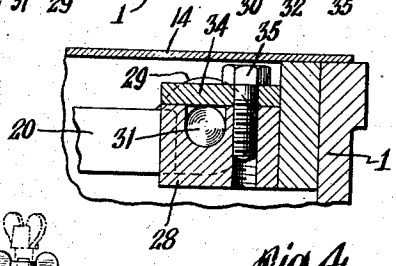


Fig. 4.

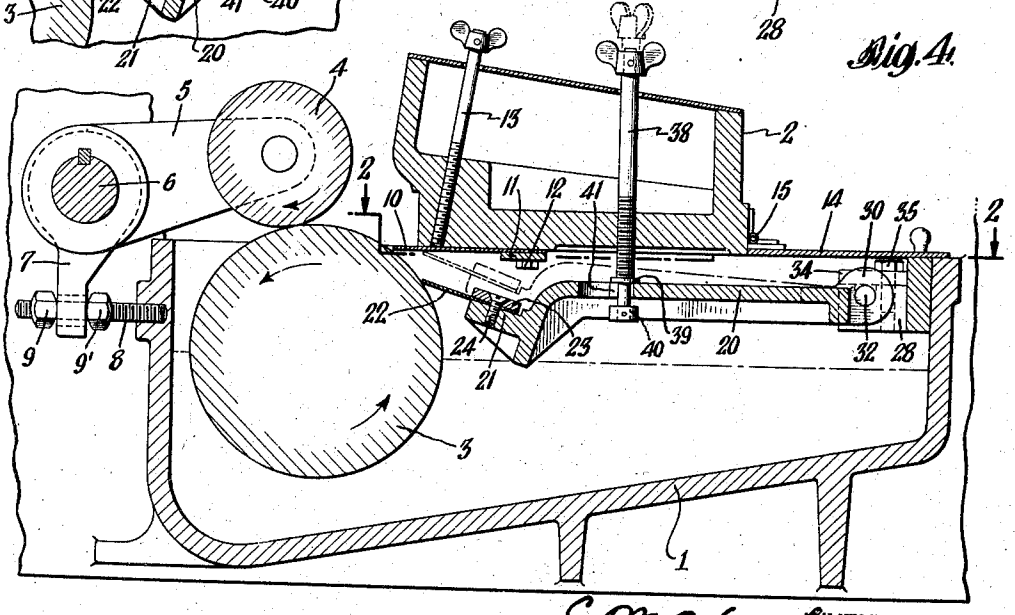


Fig. 1.

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ROTARY PRINTING PRESS INK FOUNTAIN

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Application May 1, 1939, Serial No. 271,001

8 Claims. (Cl. 101—350)

The invention relates to new and useful improvements in methods and mechanisms for supplying ink to the plate cylinders of rotary printing presses, and more especially to such methods and mechanisms for cutting off the fountain ink supply from parts of the plates, such as cutting off the ink supply from page-wide areas or plate units on the plate cylinder.

The invention consists in the novel methods, steps, sequences, mechanisms and combinations disclosed in the specification and pointed out in the appended claims.

Objects and advantages of the invention are set out in part hereinafter, and in part will be obvious to those skilled in the art or may be learned by practice with the invention.

The accompanying drawing, referred to herein and constituting a part hereof, illustrates one mechanical embodiment of the invention and one manner of carrying out the method of the invention.

Of the drawing:

Fig. 1 is a vertical transverse section through an ink fountain embodying the invention;

Fig. 2 is a fragmentary plan on line 2—2 of Fig. 1;

Fig. 3 is a broken detail section corresponding to the upper central part of Fig. 1 but showing the parts in a different position; and

Fig. 4 is a detached enlarged detail of the upper right hand part of Fig. 1.

Objects of the invention are to provide a novel method of controlling at the fountain the supply of ink to, or withholding the ink supply from, predetermined selected areas of the inking mechanism and of the plates on the plate cylinder, and preferably to thus supply or withhold the ink from page-wide areas, that is from unit plates on the plate cylinder; to provide such control of the ink supply by double regulation of the ink layer or ink film along the fountain roller, particularly in the type of inking mechanism where the ink is conveyed from the fountain roller to a non-contacting ink conveying or pick-up roller, wherein, the amount of ink transferred from the fountain roller to the pick-up roller being regulated by the relation of the thickness of the ink layer on the fountain roller to the free space between the fountain roller and the pick-up roller, and for the other or further regulation, in selected or predetermined non-printing areas, such as page-wide or plate unit areas, the thickness of the film layer on the fountain roller is reduced so that no ink will be taken by the pick-up roller. Further objects of the invention are to provide novel mechanism for simply, easily and efficiently cutting off selected or desired areas of inking surface along the fountain roller, the operating units being usually one page wide, which, with the usual plate cylinder arrangement of rotary newspaper presses, will cut off the inking for any two plates around the plate cylinder; to provide such means which will operate in conjunction with the usual ink regulating mechanism associated with the fountain roller and is well-adapted to operate in conjunction with a pick-up roller type of inking mechanism, and to provide for cutting off the ink from any predetermined or selected area of the fountain roller ahead of the ink regulating means which acts along the entire fountain roller; to provide such means having a page-wide blade adapted to be moved into engagement with and away from the fountain roller, employing, if and when desired, pressure-regulating means to control the wiping action of the blade on the roller; to provide mechanism of the kind described adapted for use with inking fountains of standard commercial form; to provide such mechanism which is readily insertable into and withdrawable from standard ink fountain mechanisms; to provide such mechanisms which are pivotally mounted for movement into and out of operative relation with the fountain roller, and have screw-threaded means for moving the mechanism into and out of operative relation with the fountain roller; to provide such mechanism manually insertable into and withdrawable from the fountain mechanism and into and out of relation with its pivotal mounting and screw-threaded positioning and regulating means.

Referring now by way of example to the embodiment of the invention illustrated by way of example in the accompanying drawing, an ink fountain 1 is suitably mounted upon the press frame and, as shown, the fountain is suspended from a cross member 2 of the press frame, and a driven rotatable fountain roller 3 is mounted in the fountain. The ink is taken from the fountain roller 3 by a pick-up roller 4. In this type of mechanism the roller 4 is driven rotatively from the inking mechanism, and is spaced a slight distance from the fountain roller 3, the space between the two rollers being minutely regulated. The thickness of the ink film on the rotating fountain roller 3 is also nicely regulated, and the relation of these two governs the amount of ink supplied from the fountain roller to the inking mechanism. In the embodied form

of means for minutely regulating the space between the fountain roller 3 and pick-up roller 4, the pick-up roller is mounted in a pair of arms 5, fixed on a shaft 6, journaled in the press frame. Fixed to shaft 6 is a yoked arm 7, which straddles a screw-threaded pin 8 between two nuts 9 and 9'. Thus the space between fountain roller 3 and pick-up roller 4 may be very accurately and minutely regulated, in cooperation with the regulation of the thickness of the ink film on the fountain roller. The illustrated form of means for regulating the thickness of the ink film on the fountain roller 3 comprises a plurality of resilient blades 10 which are usually of page or press width, and are supported on the underneath side of the frame member 2 by means of a supporting bar 11, extending along beneath the rear ends of the blades 10, this bar being fastened to the beam 2 by screw bolts 12, thus clamping the rear ends of the blades against the beam. The forward ends of the blades 10 are contiguous to the fountain roller 3, and the intervening spaces are minutely regulated by means of a plurality of screw rods 13, screw threaded into the beam 2, the points of the rods bearing on the upper face of the blades 10 and flexing the ends of the blades toward or from the fountain roller 3. Thus the relation of the thickness of the ink film and the space between fountain roller 3 and pick-up roller 4 may be closely regulated. A suitable closure 14 is provided for the rear end of the fountain, this closure consisting of a plate hinged to the beam 2 at 15.

Means are provided for cutting off the ink supply for various areas along the fountain roller, as, for example, page width areas, and this means may operate to wipe the corresponding part of the fountain roller surface substantially clear of ink, or, where a pick-up roller is employed, to reduce the thickness of the ink film on the fountain roller so that the pick-up roller will not take any ink on to its corresponding area. The embodied mechanism is of this type, and operates on the fountain roller ahead or beneath the mechanism for regulating the thickness of the ink film on the roller. Said mechanism comprises for each of such units, that is, each page-wide or plate-wide unit, a carrier frame 20, the frame having at its forward end a blade seat 21, on which is seated a longitudinally-disposed wiping blade 22 adapted to engage with the surface of the fountain roller 3. The blade 22 is held firmly in its seat 21 by a superposed, longitudinally-extending clamping bar 23, which is clamped in position by screws 24 passing through the bar and the blade and threaded into the seat 21. A pivotal bearing, into which the carrier frame 20 is readily insertable and from which it is readily withdrawable, and around which it is movable to exert the desired pressure on the fountain roller, is located at the rear end of the fountain. As embodied, the pivotal bearing comprises lugs 27 and 28 fixed to the rear vertical wall of the fountain and projecting forwardly therefrom. At the rear corners of the carrier frame 20 are integral lugs 29 and 30, from which pins 31 and 32 project outwardly and rest in cylindrical seats in the corresponding lugs 27 and 28. Removable plates 33 and 34 close the top of the bearings, and are held in place by screw bolts 35.

The embodied means for moving the frame member 20 into and out of ink film thinning or ink film removing relation with the fountain roller 3, and, if desired, for regulating the pressure of the wiping blade 22 against the fountain roller comprises a rod 38, screw-threaded into the beam 2 and projecting downwardly therefrom. On the bottom protruding portion of the screw rod 38 are two spaced-apart collars 39 and 40, the intervening part of the screw rod projecting through an opening 41 in the member 20, the collars being spaced apart to permit considerable play between rod 38 and carrier frame 20. By retracting the screw rod 38 the carrier 20 will be lifted to the inactive position shown in broken line in Fig. 1, by being lifted by the collar 40. By screwing in the rod 38 the carrier 20 will drop and the blade 22 will engage the surface of the fountain roller 3. The blade 22 may rest by gravity on the surface of fountain roller 3, thus acting to remove substantially the entire ink layer along blade 22. However, if it is desired to apply pressure of blade 22 against the fountain roller, this may be effected by further screwing down rod 38 and collar 39 will press the blade 22 as powerfully as desired against the fountain roller. This position of the parts is shown in full line in Fig. 1. To permit quick and easy insertion and withdrawal of the carrier frame 20, the opening 41 therein is in the form of a key-hole slot. To insert the carrier frame 20, it is introduced from the rear end of the fountain (the right-hand end in Fig. 1), and the collar 40 is passed through the large part of the slot 41, the carrier frame is then slid forwardly, the rod 38 passing into the narrow part of the slot 41, and the pins 31 and 32 are seated in their bearings in the lugs 27 and 28. The retaining plates 33 and 34 are then screwed down in position. The carrier frames are quickly and readily withdrawable in like manner.

The ink-wiping units may be placed side by side lengthwise of the fountain roller, and are so shown in Fig. 2, a pivotal supporting lug 28 being common to two of the carriers. For example, where the wiping units are one-page wide, and the form cylinder carries four plates along, four of the wiping units may be employed, each one controlling the inking of two plates around. It will be understood that the invention is not limited to the page-wide unit, but may be otherwise applied for ink supply control.

The invention consists in the novel steps, sequences, elements and combinations as pointed out in the accompanying claims, and it will be understood that departures may be made from the specific forms shown and described without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is :

1. In a rotary printing press ink fountain in combination a rotatable fountain roller, a pick-up roller spaced from the fountain roller, means for regulating the thickness of the ink film on the fountain roller, and means for independently removing a portion only of the ink film in page-wide areas along the fountain roller to reduce the thickness of the ink film on the fountain roller below the thickness of the space between the fountain and pick-up rollers.

2. In a rotary printing press ink fountain in combination a rotatable fountain roller, a pick-up roller, spaced from the fountain roller, means for regulating the space between the fountain roller and pick-up roller, a plurality of side by side blades along the fountain roller for regulating the thickness of the ink film on said roller and means spaced from the fountain roller for reducing the thickness of the ink film between the

fountain roller and pick-up roller at a page-wide area around the fountain roller.

3. In a rotary printing press ink fountain in combination a rotatable fountain roller, a pick-up roller spaced from the fountain roller, a plurality of side by side blades along the fountain roller for regulating the thickness of the ink film on said roller and means movable into and out of operative position for removing a portion only of the ink from a page-wide area around the fountain roller.

4. In a rotary printing press ink fountain in combination a rotatable fountain roller, a pick-up roller spaced from the fountain roller, a plurality of individually-positionable column-wide ink-regulating blades arranged along the fountain roller, and a page-wide blade removing a portion only of the ink and movable into and out of engagement with the fountain roller beneath said ink-regulating blades.

5. The method of regulating the ink supply to the plates of a rotary printing press which comprises applying ink to a rotating fountain roller, removing ink from the fountain roller by a pick-up roller spaced therefrom regulating the thickness of the ink film in each of a plurality of contiguous areas of less than page-width along the fountain roller to govern the supply of ink to the inking system and the plate cylinder and additionally removing a portion only of the supply of ink by page-wide areas along the fountain roller to reduce the thickness of the ink film on the fountain roller below the spacing of the pick-up roller from the fountain roller.

6. The method of regulating the ink supply to the plates of a rotary printing press which comprises applying ink to a rotating fountain roller, removing ink from the fountain roller by a pick-up roller spaced therefrom regulating the thickness of the ink film in each of a plurality of contiguous areas of less than page-width along the fountain roller to govern the supply of ink to the inking system and the plate cylinder and preliminarily additionally removing a portion only of the supply of ink by page-wide areas by reducing th ethickness of the ink film on the fountain roller so as to prevent contact between the ink film and the pick-up roller.

7. The method of regulating the ink supply to the plates of a rotary printing press which comprises applying ink to a rotating fountain roller, transferring a predetermined supply of ink from the fountain roller to a pick-up roller spaced from the fountain roller by regulating the thickness of the ink film on the fountain roller and preventing transfer of ink from a selected area about the fountain roller to the pick-up roller by removing a portion only of the film of ink on said selected area of the fountain roller to a thickness less than the space between the fountain roller and pick-up roller.

8. The method of regulating the ink supply to the plates of a rotary printing press which comprises applying ink to a rotating fountain roller, removing ink from the fountain roller by a pick-up roller spaced therefrom, regulating the thickness of ink on the fountain roller across the fountain roller to vary the amount of ink transferred to the pick-up roller, and removing a portion only of the ink on the fountain roller to reduce the thickness of the film of ink on the fountain roller below the thickness of the space between the fountain roller and pick-up roller, to cut off the ink supply from certain areas widthwise of the pick-up roller.

EMORY W. WORTHINGTON.