May 31, 1932. M. A. DROITCOUR 1,860,496

INKING MECHANISM

Filed Dec. 22, 1928 2 Sheets-Sheet 1

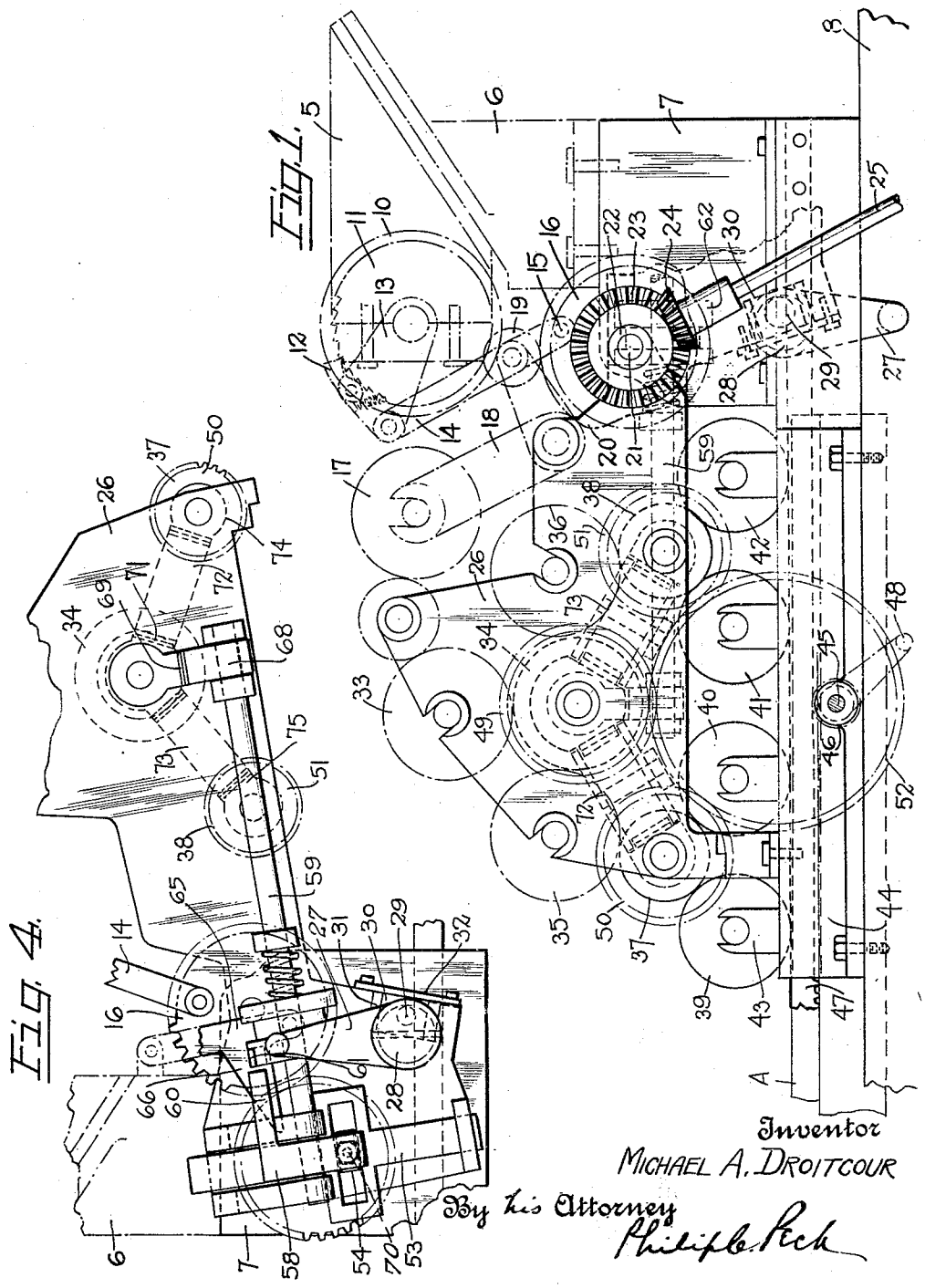


Fig. 1.

Fig. 4.

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Fig. 3.

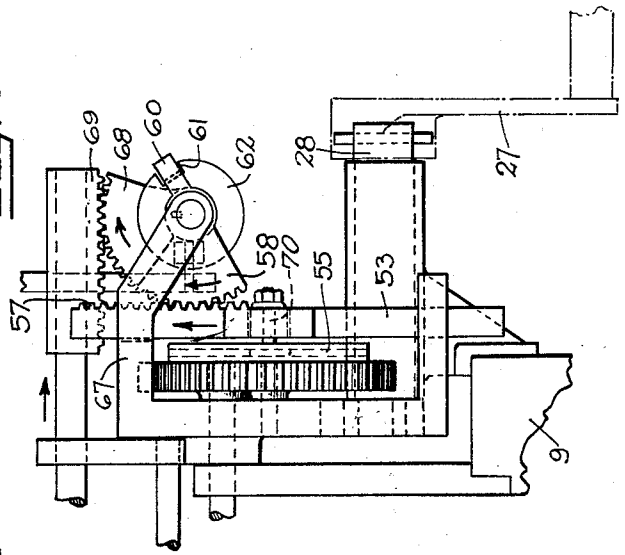
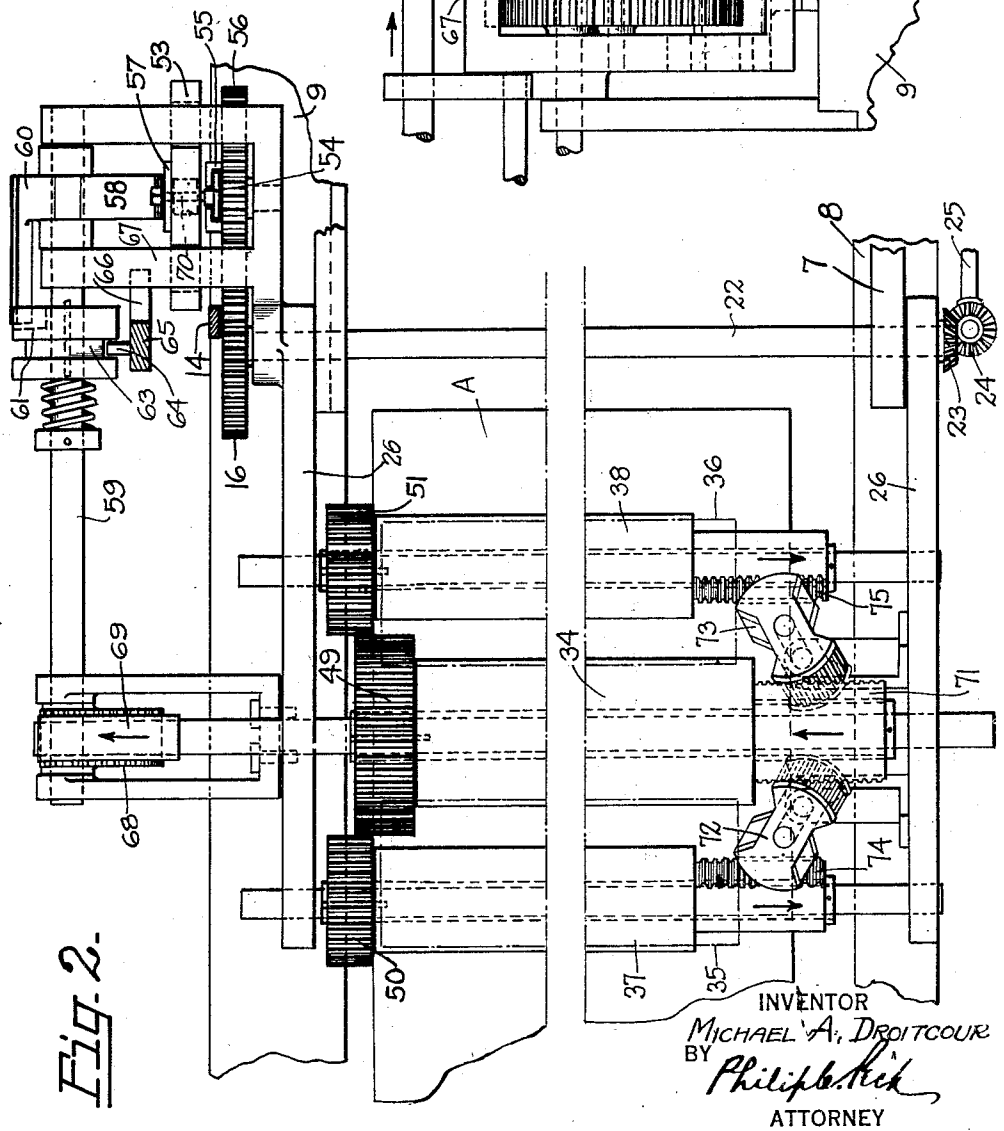


Fig. 2.



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Patented May 31, 1932 1,860,496

UNITED STATES PATENT OFFICE

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INKING MECHANISM

Application filed December 22, 1928. Serial No. 327,772.

My invention relates to improvements in printing machinery, and is more particularly directed to improved inking mechanisms therefor by which the ink is delivered to the inking rolls of the printing-press in uniform and regulated quantities.

The objects of my invention are, among other things, to provide an improved inking mechanism actuated from the press whereby the ink distributing rollers which carry the ink to the press inking rolls may be simultaneously rotated and vibrated laterally of the press, coupled with improved means for swinging such ink distributing rollers upwardly and out of contact with the inking rolls, such distributing rollers when raised being also adapted to be retracted from their operative position in contact with the press inking rolls so that all the rollers and inking rolls are readily accessible for cleaning or readjustment and may also be removed or replaced without disturbing in any way the operating mechanism whereby the ink distributing rollers are rotated and vibrated relatively to one another in timed relation with the press.

A further object is to provide an improved mechanism whereby the vibration of the ink distributing rollers relatively to one another may be regulated from zero to maximum according to requirements in conjunction with means to stop the vibrating mechanism when such ink distributing rollers are swung upwardly out of their operative position in contact with the inking rolls for the press.

With these and other objects in view, the invention comprises certain constructions hereinafter described and then particularly pointed out in the claims, and a preferred embodiment of the invention is illustrated in the accompanying drawings in which—

Fig. 1 is a side elevation of the ink fountain stand and associated mechanism in relation to the inking rolls of a flat-bed printing press;

Fig. 2 is a plan view of the ink distributing rollers with the means for rotating and vibrating same;

Fig. 3 is a detail end elevation of parts shown in Fig. 2; and

Fig. 4 is a detail side view looking from the opposite side of Fig. 1 with the distributing rollers raised.

Similar numerals refer to similar parts throughout the several figures.

Referring to the drawings, the ink fountain 5 holding the supply of ink is carried by the standards 6 bolted to the fountain stand 7 mounted on the side-frames 8 and 9 of the press. The fountain 5 carries the roller 10 to which is affixed the ratchet 11 operated by the pawl 12 pinned to the lever 13 which is actuated by the link 14 fastened to the stud 15 mounted on the gear 16, whereby the roller 10 is intermittently revolved to carry ink to the oscillating ductor roller 17 pivoted to the rock-lever 18 carrying the cam-roller 19 which engages the cam 20 keyed to the shaft 21 enclosed within the hollow shaft 22. The gear 16 is also fast to the shaft 21 which is driven by the mitre gear 23 mounted on the shaft 21, the gear 23 meshing with the mitre gear 24 splined on the head of the drive shaft 25 as shown in Figs. 1 and 2 with the key loose but fastened to the shaft 25.

The lift arms 26 for the ink-distributing rollers extend to the left in Figs. 1 and 2, and are fastened to the hollow shaft 22 carried by the shaft 21. The hand lever 27 is secured to the stub-shaft 28 (Figs. 1, 3 and 4) which has the lug 29 engaging the block 30 which works in the slot 31 cut in one of the lift arms 26, the slot 31 being closed by the plate 32 to hold the block 30 in operating relation with the slot 31 (Figs. 1 and 4).

The ductor-roller 17 transfers the ink to the roller 33 which distributes such ink to the middle distributing roller 34 while the roller 34 through the medium of the rollers 35 and 36 transfers ink to the distributing rollers 37 and 38 respectively which contact with the four press inking rolls, 39, 40, 41 and 42 respectively which ink the reciprocating form bed A, all as shown in Fig. 1 which illustrates the various rolls in running position with the lug 29 toward the right. In Fig. 4 the lift arms 26 have been raised by the shifting of the hand-lever 27.

The inking rolls 39, 40, 41 and 42 are removably journalled in open bearings 43

mounted on the brackets 44 (only one being shown in Fig. 1) securely bolted to the press side-frames 8 and 9. The brackets 44 carry the cross-shaft 45 on which is fastened the gear 46 which engages the rack 47 fast to the fountain stand 7, and the shaft 45 also carries on its end the hand-lever 48 by which the stand 7 and lift arms 26 may be run back (toward the right in Fig. 1) when the lift arms 26 are raised as shown in Fig. 4. By this mechanism the inking rolls 39, 40, 41 and 42 are uncovered and may be easily removed from their open bearings 43 and other rolls replaced therein, and the ductor 17 and also the ink distributing rollers 33, 35 and 36 may also be removed from their open bearings in the lift arms 26 (Fig. 1).

Means are provided for both rotating and vibrating the ink-distributing rollers 34, 37 and 38 in unison with the operation of the press: The gears 49, 50 and 51 are splined on the ends of the respective distributing rollers 34, 37 and 38 (Fig. 2), which gears are rotated by the common gear 52 which is actuated in the usual way from the reciprocating bed A of the press (not shown), so that the rollers 34, 37 and 38 turn with the press and then reverse as the bed A is reciprocated.

To mix the ink properly the rollers 34, 37 and 38 are vibrated laterally by the Scotch yoke 53 having the adjustably mounted block 54 slidably held in the slot 55 formed in the gear 56 (Figs. 2, 3 and 4), which is actuated by the gear 16 on the shaft 21. The yoke 53 also carries the rack 57 which meshes with the toothed sector 58 loosely mounted on the shaft 59; the sector 58 carries the arm or clutch end 60 which engages the slot 61 cut in the clutch collar 62 loosely splined to the shaft 59. The groove 63 formed in the clutch collar 62 is engaged by the key 64 secured to the lever 65. The lever 65 has the extension 66 which engages the lower side of the bracket 67 (Fig. 3). When the lift arms 26 are raised to their Fig. 4 position, the extension 66 causes the clutch collar 62 to move to the right (Fig. 4) and so disengage the clutch end 60 from the slot 61 in the collar 62 as shown to stop the vibration of the rollers 34, 37 and 38. The gears 49, 50 and 51 are also lifted out of engagement with their common gear 52 to stop the rotation of these ink-distributing rollers 34, 37 and 38 as hereinbefore described.

The shaft 59 has keyed to it the segment 68 which engages the rack 69. When the yoke 53 is reciprocated by the pin 70 in the gear 56, the rack 69 is oscillated which causes the roller 34 to move to and fro laterally while being rotated by the gear 49. The rack 71 affixed to the roller 34 engages the double end segments 72 and 73 which mesh with the racks 74 and 75 loosely secured on the shafts of the distributing rollers 37 and 38, but confined by collars to secure end play, so that the rollers 37 and 38 vibrate in opposite directions from the movement of the roller 34.

The block 54 carried by the Scotch yoke 53 can be adjustably moved to and from the center of the gear 56 in the slot 55 to vary the amount of vibration of the rollers 34, 37 and 38 from zero to maximum to suit the requirements of the job on the press.

When the lift arms 26 are moved from their Fig. 1 to the Fig. 4 position and then retracted to the right in Fig. 1, the drive shaft 25 is oscillated but does not come out of gear mesh since the mitre gear 24 is splined to the shaft 25 with the key loose in it but fast to the shaft 25 so that the timing of the various parts and operating mechanisms is maintained in relation to the press.

Changes and variations may be made in the construction shown and described as one embodiment of my invention without departing from the principles of the invention or sacrificing its chief advantages, and hence my improved inking mechanism is not to be confined to the construction shown in the accompanying drawings.

I claim as my invention:—

1. In a printing-press inking mechanism, ink distributing rollers, means for simultaneously rotating and vibrating same actuated from the press, means comprising a Scotch yoke for adjusting the length of the vibrating strokes of said rollers from zero to maximum as desired without disconnecting said actuating means from the press, and means for lifting said rollers to an inoperative position and simultaneously and separately disconnecting said rotating and vibrating means from said rollers without disturbing their timed relation with each other and with the press.

2. In a printing-press inking mechanism, a series of ink distributing rollers, separate means for rotating and vibrating same, means comprising a Scotch yoke for adjusting said vibrating means for strokes of different lengths from zero to maximum as desired without affecting the operation of said roller rotating means, and means for lifting said rollers to an inoperative position and simultaneously and separately disconnecting said rotating and vibrating means from said rollers without disturbing their timed relation with each other and with the press.

3. In an inking mechanism for flat bed printing-presses, a reciprocating bed, an ink distributing roller, means for rotating same actuated by the press, separate means independent of the moving bed and including a clutch for vibrating said roller alternatively with strokes of variable lengths, and means for moving said roller to an inoperative position to stop its rotation and simultaneously opening said clutch to stop its vibration without disturbing the operative relation of

said rotating and vibrating means with the press.

4. In an inking mechanism for flat bed printing-presses, a reciprocating bed, a series of ink distributing rollers, means for rotating same actuated by the press, separate means independent of the moving bed and including a clutch for vibrating said rollers alternatively with strokes of variable lengths, and means for moving said rollers to an inoperative position to stop their rotation and simultaneously opening said clutch to stop their vibration without disturbing the operative relation of said rotating and vibrating means with the press.

5. In an inking mechanism for flat bed printing-presses, a reciprocating bed, a series of ink distributing rollers, means for rotating same actuated by the press, separate means independent of the moving bed and including a clutch for vibrating said rollers in unison and alternatively with strokes of variable lengths, and means for moving said rollers to an inoperative position to stop their rotation and simultaneously opening said clutch to stop their vibration without disturbing the operative relation of said rotating and vibrating means with the press.

6. In an inking mechanism for flat bed printing-presses, a reciprocating bed, a series of ink distributing rollers, means for rotating same actuated by the press, separate means independent of the moving bed and including a clutch for vibrating said rollers alternatively with strokes of variable lengths, means for moving said rollers to an inoperative position to stop their rotation and simultaneously opening said clutch to stop their vibration without disturbing the operative relation of said rotating and vibrating means with the press, and a single means for adjusting said vibrating means to vary said strokes from zero to maximum as desired.

7. In an inking mechanism for flat bed printing-presses, a main inker frame for the inking rolls slidably mounted on the press, means for horizontally reciprocating said main frame, ink distributing rollers carried by frames pivoted to said main frame, a common means actuated by the press for rotating said rollers in unison, and means also carried by said main frame for moving said distributing rollers into and out of engagement with said inking rolls without disturbing their timed relation with each other and with the press.

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