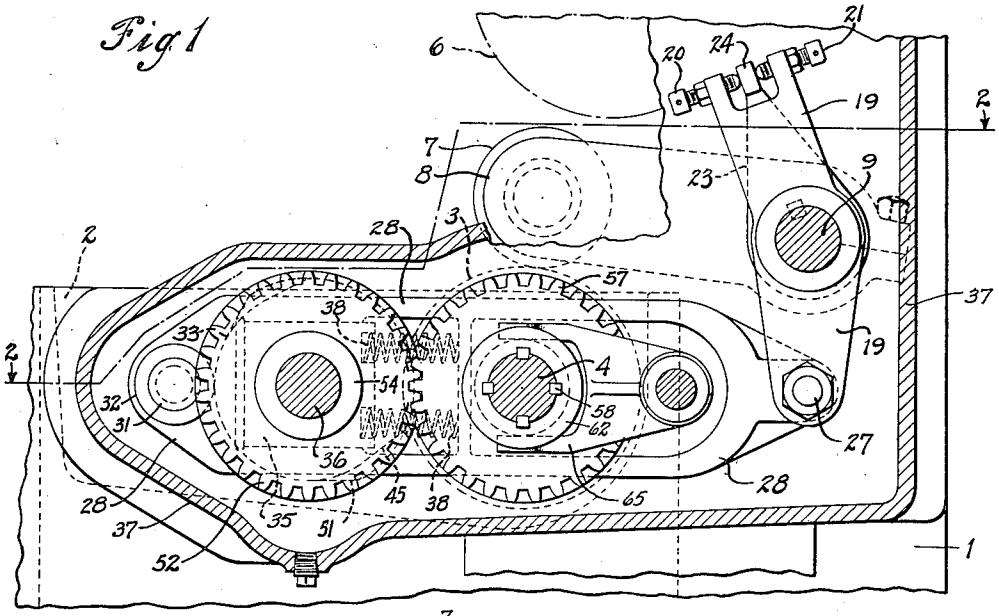
April 27, 1937. C. S. CRAFTS 2,078,628

PRINTING PRESS

Filed Feb. 1, 1935

Fig. 1



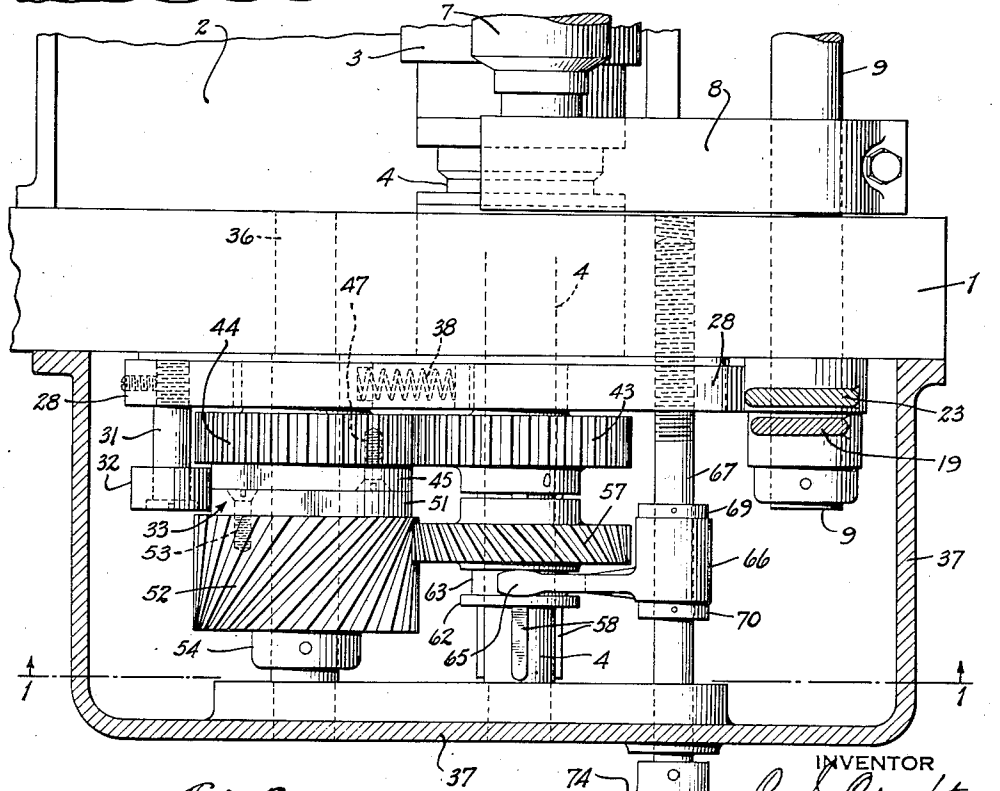


Fig. 2

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PRINTING PRESS

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24 Claims. (Cl. 101—363)

The invention relates to new and useful improvements in printing press inking mechanisms, and more particularly to improvements in mechanism for actuating and controlling the ductor roller action in such inking mechanisms.

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 drawing, referred to herein and constituting a part hereof, illustrates one embodiment of the invention, and together with the description, serves to explain the principles of the invention.

Of the drawing:—

Fig. 1 is an elevation of part of an inking mechanism embodying the invention, and is taken on line 1—1 of Fig. 2; and

Fig. 2 is a plan view taken on line 2—2 of Fig. 1.

An object of the invention is to provide an inking mechanism especially capacitated to fulfill the severe and exacting conditions and requirements of high speed rotary printing, and especially those conditions as found in modern newspaper presses; and more especially to provide for exact and efficient variable control of the inking action while the press is running, so that best printing conditions may be ascertained and established under running conditions. The invention provides especially for efficient and accurate control of the ductor roller action, and for effecting desired variations in the dwell thereof while the presses are running at usual speed and under normal printing conditions. With these and other objects in view the invention provides ductor roller actuating and controlling means comprising a plurality of gear trains driven by the inking mechanism, with means for varying the relation of gears in one train to increase or decrease the dwell of the ductor roller while leaving its speed unchanged. The invention further provides ductor roller actuating and controlling cam and means, preferably screw-threaded and manually operated, for varying the cam contour while the press is running to vary the dwell of the ductor roller. In accordance with one feature of the invention, the ductor roller control comprises an actuating cam, driven by the gears in time with the inking mechanism, one gear train being controlled to vary the cam contour to regulate and modify the dwell of the ductor roller. The control of the mechanism is preferably effected by screw-threaded means operating on a gear train, preferably manually operated, and the variation and control may be efficiently and accurately effected while the press is running at speed, and the best conditions may be obtained and established under the actual high speed running conditions.

The foregoing general description, and the following detailed description are exemplary and explanatory of the invention, but are not restrictive thereof.

Referring now to the embodiment of the invention illustrated by way of example in the accompanying drawing, 1 indicates a portion of the press frame and 2 the ink fountain mounted thereon. The fountain roller 3 is mounted on a shaft 4, which is driven by suitable means (not shown). Shaft 4 is journaled in the press frame and extends outside of the frame for purposes hereinafter to be described. 6 is the distributing cylinder, or other ink receiving cylinder, and 7 is the ductor roller or feeding roller, moving between the fountain roller 3 and distributing cylinder 6 to convey the ink. Ductor roller 7 is journaled in arms 8 fixed on a shaft 9, which shaft is journaled in the press frame and is rocked to vibrate the ductor roller as described.

The embodied form of means for actuating the ductor roll comprises a lever 19 journaled on shaft 9, the lever being yoked or recessed at its outer end as shown in Fig. 1. In the two arms of the yoke are mounted adjusting screws 20 and 21. Keyed on shaft 9, adjacent lever 19, is an arm 23, the upper end 24 of which projects between the screws 20 and 21, which provide means for adjustment between the lever arms to accommodate rollers of different sizes and to regulate the pressure of the ductor roll upon the fountain roll and upon the distributing cylinder. Pivotally connected at 27 to the lower end of lever arm 19 is a hollow or recessed actuating link 28, which straddles the projecting fountain roller shaft and certain other mechanisms (Fig. 1). At the other end of the actuating link 28 is fixed a shaft 31 upon which is mounted a cam roller 32 which cooperates with a compound cam 33, that is a cam with members or leaves which are relatively movable angularly to vary the extent of the low and high parts of the cam. The actuating link 28 is slidingly supported upon a guide block 35 mounted on a shaft 36, supported in the press frame 1 and in the hous-

ing 37 of the oiling system. Coil springs 38 are in compression between the link member 28 and the guide block 35 to hold the cam roller resiliently to its cam. The cam 33 is driven from the inking mechanism and for this purpose a spur gear 43 is fixed on shaft 4 of the fountain roller, and meshes with a gear 44 loosely journaled on shaft 36. The leaf or vane 45 of the compound cam 33 is fixed to the face of gear 44 by suitable means such as screws 47.

In the embodied means for varying the dwell of the ductor roller, the other leaf or vane 51 of cam 33 is fixed to a broad faced helical gear 52 loosely journaled on shaft 36, being fastened thereto by suitable means such as screws 53. These gears and the cam are held against movement along shaft 36 by the collar 54. A narrow helical gear 57 is mounted to rotate with and to slide along shaft 4 of the fountain roller by means of splines 58, this gear meshing with the broad faced gear 52. The embodied means for sliding the gear 57 comprises a hub 62 fixed to the gear, an annular groove 63 being formed in the hub. A yoke 65 engages in the groove 63, the yoke having a hub 66 journaled on a rod 67 which is screw-threaded in the press frame and is rotatably mounted in the housing 37. Collars 69 and 70 are fixed to screw rod 67 at either side of the hub 66 so that when the screw rod is rotated the yoke will travel with the rod and move the helical gear 57 on the face of the helical gear 52 to effect slight relative rotation between the vanes or leaves 45 and 51 of the cam, to modify the low or high parts, and thereby to vary the dwell of the ductor roll without changing the speed. Screw rod 67 is provided with a hand wheel 74 whereby it may be turned from outside the oil housing and while the press is in motion.

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 I claim is:

1. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a compound cam having a plurality of cam members, gear connections for driving the cam from the inking mechanism, a helical gear fixed to rotate with one of the cam members, a second helical gear meshing with said first-mentioned helical gear, means for moving said second helical gear relatively to said first-mentioned helical gear to relatively position the cam members to vary the dwell of the ductor roller, and actuating connections from said cam to said ductor roller.

2. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a compound cam having a plurality of cam members, gear connections for driving the cam from the inking mechanism, a helical gear fixed to rotate with one of the cam members, a second helical gear meshing with said first-mentioned helical gear, means including a screw-threaded device for moving said second helical gear relatively to said first-mentioned helical gear to relatively position the cam members to vary the dwell of the ductor roller, and actuating connections from said cam to said ductor roller.

3. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a compound cam having a plurality of cam members, gear connections for driving the cam from the inking mechanism, a helical gear fixed to rotate with one of the cam members, a second helical gear meshing with said first-mentioned helical gear, a screw-threaded rod, and a device movable by said rod for moving said second helical gear relatively to said first mentioned helical gear to relatively position the cam members to vary the dwell of the ductor roller, and actuating connections from said cam to said ductor roller.

4. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a compound cam having a plurality of cam members, a gear fixed on the fountain roller shaft, a second gear meshing therewith, a helical gear, a compound cam, one cam member being fixed to rotate with said second gear and another cam member being fixed to rotate with said helical gear, a second helical gear meshing with said first-mentioned helical gear, means for relatively moving said helical gears to relatively position the cam members to vary the dwell of the ductor roller, and actuating connections from said cam to said ductor roller.

5. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a compound cam having a plurality of cam members, a gear fixed on the fountain roller shaft, a second gear meshing therewith, a helical gear, a compound cam, one cam member being fixed to rotate with said second gear and another cam member being fixed to rotate with said helical gear, a second helical gear meshing with said first-mentioned helical gear, means including a screw-threaded device and connections therefrom to one of said helical gears for relatively moving said helical gears to relatively position the cam members to vary the dwell of the ductor roller, and actuating connections from said cam to said ductor roller.

6. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a compound cam having a plurality of cam members, a gear fixed on the fountain roller shaft, a second gear meshing therewith, a broad faced helical gear, a compound cam, one cam member being fixed to rotate with said second gear and another cam member being fixed to rotate with said helical gear, a helical gear splined on the fountain roller shaft and meshing with said broad faced helical gear, and means for moving said splined gear on the broad faced helical gear to relatively position the cam members to vary the dwell of the ductor roller and actuating connections from said cam to said ductor roller.

7. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a compound cam having a plurality of cam members, a gear fixed on the fountain roller shaft, a second gear meshing therewith, a broad faced helical gear, a compound cam, one cam member being fixed to rotate with said second gear and another

cam member being fixed to rotate with said helical gear, a helical gear splined on the fountain roller shaft and meshing with said broad faced helical gear, a screw-threaded rod, a yoke mounted thereon and engaging said splined helical gear to move it on the face of said broad helical gear to relatively position the cam members to vary the dwell of the ductor roll, and actuating connections from said cam to said ductor roll.

8. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roll moving between said roller and cylinder, a compound cam having side by side angularly positionable members, gearing connected to rotate one of the cam members, gearing connected to rotate another cam member, means acting on one of said gearings to variably position said cam members to vary the dwell of the ductor roll, and actuating connections from said cam to said ductor roll.

9. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roll moving between said roller and cylinder, a compound cam having side by side angularly positionable members, gearing connected to rotate one of the cam members, gearing connected to rotate another cam member, one of said sets of gearing being driven from the inking mechanism, means acting on one of said gearings to variably position said cam members to vary the dwell of the ductor roll, and actuating connections from said cam to said ductor roll.

10. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roll moving between said roller and cylinder, a compound cam having side by side angularly positionable members, gearing connected to rotate one of the cam members, gearing connected to rotate another cam member, both of said sets of gearing being driven from the inking mechanism, means acting on one of said gearings to variably position said cam members to vary the dwell of the ductor roll, and actuating connections from said cam to said ductor roll.

11. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and receiving cylinder, and means for actuating and controlling the ductor roller comprising a cam having two separately rotatable and relatively movable leaves, and means for relatively positioning the leaves of the cam to vary the dwell of the ductor roll while the mechanism is running.

12. An inking mechanism including in combination an ink fountain and fountain roller, an ink receiving cylinder, a ductor roller moving between said fountain roller and receiving cylinder, and means for actuating and controlling the ductor roller comprising a cam having two separately rotatable and relatively movable leaves, and means for relatively operated, screw-threaded member, for relatively positioning the leaves of the cam to vary the dwell of the ductor roll while the mechanism is running.

13. A printing press inking mechanism including in combination an ink fountain, a fountain roller and shaft, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a driving pinion on the fountain roller shaft, a pinion meshing therewith and driven thereby, a compound cam having one of its leaves fixed to said pinion, a driven helical gear concentric with said driven pinion and having the other leaf of the compound cam fixed thereto, an intermeshing driving helical gear rotating with but slidable along said fountain roller shaft, a hand-operated screw-threaded rod and connections therefrom for sliding said driving helical gear across the face of said driven helical gear to change the relative angular position of said cam leaves, a ductor roller actuating lever pivoted at one side of and extending past said gearing, and a cam roller mounted on the lever and coacting with said compound cam.

14. A printing press inking mechanism including in combination an ink fountain, a fountain roller and shaft, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a driving pinion on the fountain roller shaft, a pinion meshing therewith and driven thereby, a compound cam having one of its leaves fixed to said pinion, a driven helical gear concentric with said driven pinion and having the other leaf of the compound cam fixed thereto, an intermeshing driving helical gear rotating with but slidable along said fountain roller shaft, a hand-operated screw-threaded rod and connections therefrom for sliding said driving helical gear across the face of said driven helical gear to change the relative angular position of said cam leaves, a ductor roller actuating lever and a cam roller mounted on said lever and cooperating with said compound cam.

15. A printing press inking mechanism including in combination an ink fountain, a fountain roller and shaft, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a driving pinion on the fountain roller shaft, a pinion meshing therewith and driven thereby, a compound cam having one of its leaves fixed to said pinion, a driven helical gear concentric with said driven pinion and having the other leaf of the compound cam fixed thereto, an intermeshing driving helical gear rotating with but slidable along said fountain roller shaft, hand-operated means to change the relative angular position of said cam leaves, a ductor roller actuating lever and a cam roller mounted on said lever and cooperating with said compound cam.

16. A printing press inking mechanism including in combination an ink fountain, a fountain roller and shaft, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a driving pinion on the fountain roller shaft, a pinion meshing therewith and driven thereby, a compound cam having one of its leaves fixed to rotate with said driven pinion. a driven helical pinion concentric with said driven pinion, the other leaf of the compound cam being fixed to rotate with said helical pinion, an intermeshing helical pinion driven from said fountain roller shaft, means for effecting relative axial-movement between said helical gears to change the relative angular position of said cam leaves, a ductor roller actuating lever and a cam roller mounted thereon and coacting with said compound cam.

17. A printing press inking mechanism including in combination an ink fountain, a fountain roller and shaft, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, a driving pinion on the fountain roller shaft, a pinion meshing with and driven by said driving pinion, a compound cam having one of its leaves fixed to said pinion, a pinion

concentric with said driven pinion, the other leaf of said compound cam being fixed thereto, a pinion rotating with the fountain roller and meshing with said last mentioned pinion, means for changing the angular relation of said last mentioned pinions to change the relative angular relation of said cam leaves, a ductor roller actuating lever and a cam roller mounted thereon and coacting with said compound cam.

18. A printing press inking mechanism including in combination an ink fountain, a fountain roller and shaft, an ink receiving cylinder, a ductor roller moving between said fountain roller and cylinder, two driving pinions mounted on and rotating with said fountain roller shaft, two driven concentric gears one gear meshing with one of said driving pinions and the other gear meshing with the other of said driving pinions, a compound cam between and concentric with said driven gear, one leaf of the cam being fixed to one of the gears and the other leaf of the cam being fixed to the other of said gears, means for varying the angular relation of one pair of intermeshing gears to change the angular position of said cam leaves, a ductor roller actuating lever and a cam roller mounted thereon and coacting with said compound cam.

19. A printing press inking mechanism including in combination an ink fountain, a fountain roller and shaft, an ink receiving cylinder, a ductor roller between said fountain roller and cylinder, a driving pinion fixed on the fountain roller shaft, a shaft parallel with the fountain shaft, a gear loose on said shaft and meshing with and driven by said driving pinion, a helical gear loose on said parallel shaft, a compound cam between said two last mentioned gears and having one of its leaves fixed to one of said gears and the other leaf fixed to the other of said gears, a helical gear rotating with but slidable on the fountain roller shaft, and intermeshing with said first-mentioned helical gear to drive it, means for moving said driving helical gear along the fountain roller shaft, a ductor roller actuating lever, a cam roller mounted thereon and coacting with said compound cam.

20. A printing press inking mechanism including in combination an ink fountain, a fountain roller and shaft, an ink receiving cylinder, a ductor roller moving between said fountain and cylinder, a shaft and two gears loosely mounted thereon, a compound cam between said gears, and having one leaf fixed to rotate with one of said gears and the other leaf fixed to rotate with the other of said gears, means for driving both of said gears independently from the fountain roller shaft, means for varying the relative angular position of said gears to change the shape of the cam, a ductor actuating lever, and a cam, roller mounted thereon and coacting with said compound cam.

21. An inking mechanism including in combination an ink fountain, a ductor roller, a cam having two separately rotatable vanes, a gear train for rotating one cam vane, a gear train for rotating the other cam vane, means operating on one of said gear trains to change the relative angular position of the two cam vanes to vary the dwell of the ductor roller and ductor roller actuating means operated by said cam vanes.

22. An inking mechanism including in combination an ink fountain, a ductor roller, a cam having two relatively angularly movable vanes, a gear train rotating one cam vane, a gear train rotating the other cam vane at the same speed, means for varying the angular position of the cam vanes to vary the dwell of the ductor roller, and actuating connections between the cam vanes and ductor roller.

23. An inking mechanism including in combination an ink fountain, a ductor roller, a rotary cam having a plurality of rotatable vanes loosely mounted on a shaft, a train of gears rotating one of said cam vanes, a train of gears rotating another of said cam vanes at the same angular speed, means for changing the relative position of the gears in one of said trains to change the relative position of said cam vanes to vary the movement of the ductor roller, and actuating connections between said cam vanes and said ductor roller.

24. An inking mechanism including in combination an ink fountain, a ductor roller, a cam having two separately rotatable vanes, gearing rotating one of said vanes, gearing rotating the other vane at the same speed, and means for changing the relative angular position of the vanes, without affecting their rotational speed, to vary the dwell of said ductor roller, and actuating connections from said vanes to the ductor roller.

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