Dec. 3, 1940. H. M. BARBER 2,223,945

INKING MECHANISM FOR PRINTING PRESSES

Filed June 20, 1939 2 Sheets-Sheet 1

Fig. 1.

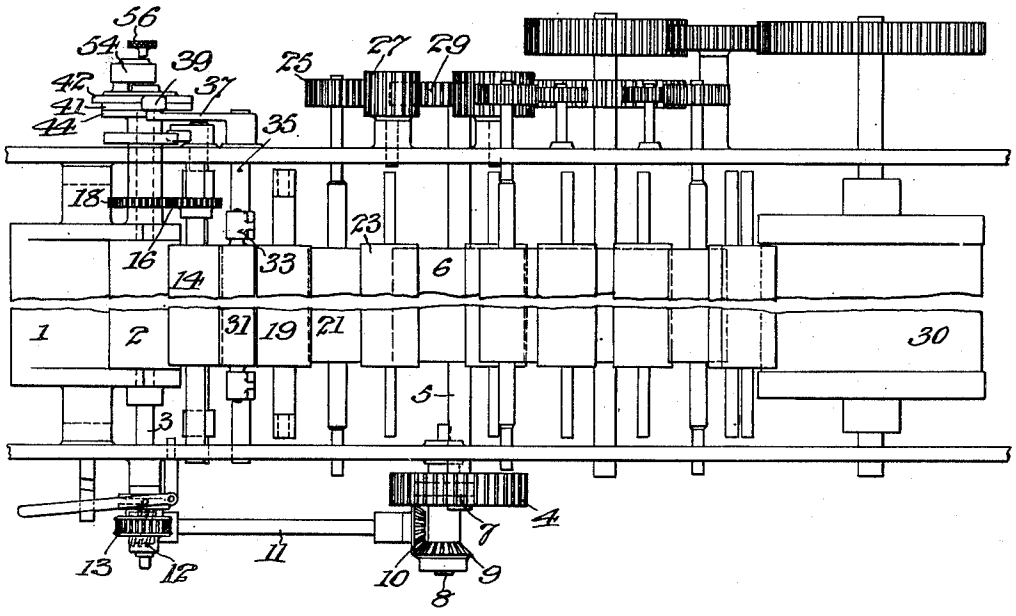
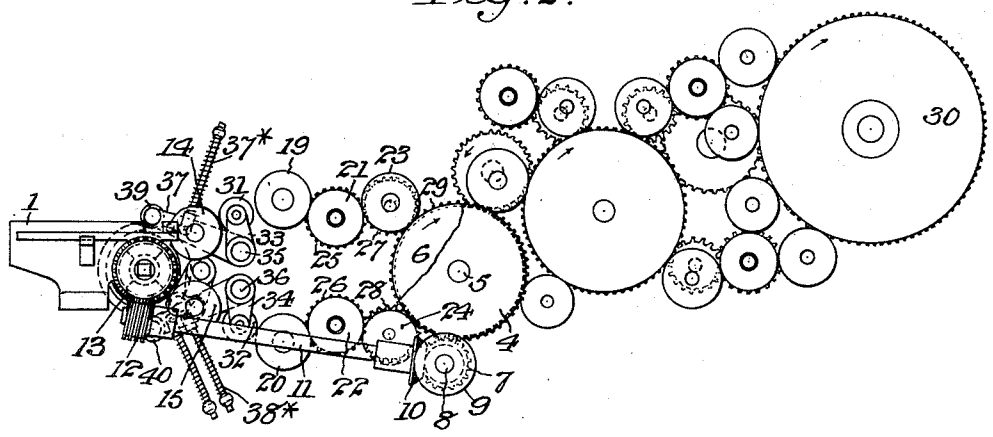


Fig. 2.



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Filed June 20, 1939 2 Sheets-Sheet 2

Fig. 3.

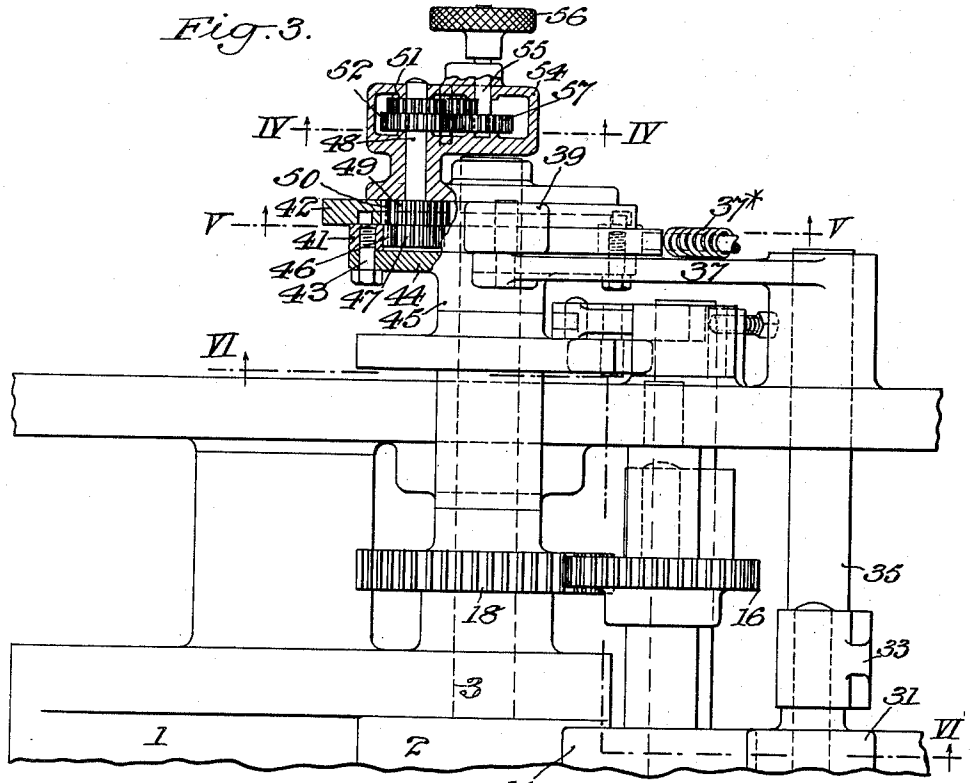


Fig. 4.

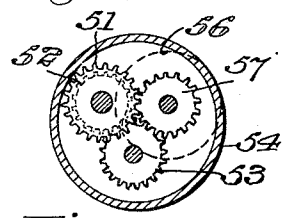


Fig. 5.

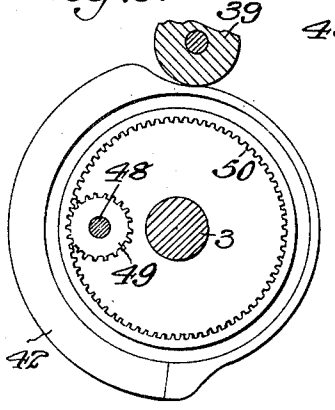
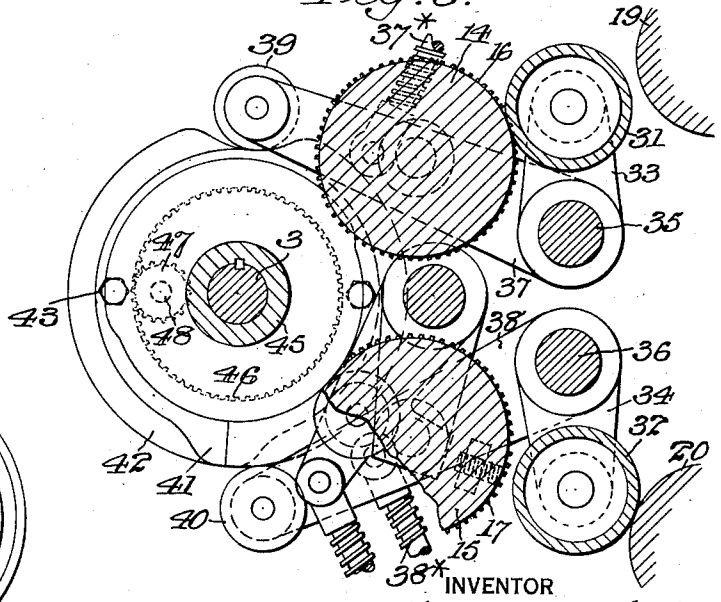


Fig. 6.



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INKING MECHANISM FOR PRINTING PRESSES

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Application June 20, 1939, Serial No. 280,039

5 Claims. (Cl. 101—350)

The object of my invention is to provide novel means for continuously supplying a predetermined amount of ink to the ink distribution of a high speed rotary printing press.

My invention includes the elimination of heavy ductor rollers by the provision of ductor rollers of light weight tubing so that there is a minimum amount of inertia to overcome when the ductor rollers are being accelerated and also a minimum amount of stored energy to overcome when they contact the slowly moving ink supply rollers, thereby facilitating the rapid acceleration and abrupt stopping action of the ductor rollers without undue wear thereon.

My invention also includes a pair of ink supply rollers which receive their ink from and are constantly driven by the fountain roll.

My invention also includes means for varying the dwell of the ductor rollers while in contact with their ink supply rollers for transferring more or less ink to the ink distribution.

My invention more particularly includes means for varying the ink supplied to the ink distribution, said means including a divided rotary cam carried by the fountain roll shaft together with means for adjusting the length of the high and low surfaces by a relative rotary movement of the cam members while the press is running, to regulate the length of dwell of the ductor rollers while in contact with their ink supply rollers.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents a diagrammatic top plan view of my improved inking mechanism;

Fig. 2 represents a diagrammatic side elevation of the same;

Fig. 3 represents an enlarged detail top plan view, partly in section, of the means for varying the amount of ink supplied to the ink distribution;

Fig. 4 represents a detail section taken in the plane of the line IV—IV of Fig. 3, looking in the direction of the arrows;

Fig. 5 represents a detail section taken in the plane of the line V—V of Fig. 3, looking in the direction of the arrows;

Fig. 6 represents a detail section taken in the planes of the lines VI—VI of Fig. 3.

The ink fountain is denoted by 1, the fountain roll by 2 and the fountain roll shaft by 3. The fountain roll is driven continuously at a slower surface speed than the surface speed of the press. In the present instance the fountain roll shaft 3 is shown as being driven at the desired speed from a gear 4 on the cross shaft 5 of the ink drum 6 of the ink distribution, through the gear 7 on the stud shaft 8, the bevel gears 9, 10, the longitudinally disposed shaft 11, the worm 12 thereon and the worm gear 13 on the fountain roll shaft 3.

A pair of ink supply rollers 14, 15 contact with the fountain roll 2 and are positively driven by the fountain roll at the surface speed thereof through their gears 16, 17 which mesh with the gear 18 on the fountain roll shaft 3.

A pair of ink feed rollers 19, 20 which form part of the ink distribution are shown in the present instance as frictionally driven at the surface speed of the press from the distribution rollers 21, 22 which in turn are positively driven from the distribution rollers 23, 24 through the gears 25, 26 and 27, 28. These gears 27, 28 mesh with a gear 29 on the ink drum 6.

It will be understood that the ink drum 6 may be positively driven by the usual gearing (not specifically described herein) from the form cylinder 30.

A pair of ductor rollers 31, 32 of light metal tubing oscillate between their respective ink supply rollers 14, 15 and ink feed rollers 19, 20, which ductor rollers are carried by the corresponding arms 33, 34 of two rock levers pivoted at 35, 36. These rock levers have additional corresponding arms 37, 38 which carry cam rollers 39, 40 that are yieldingly held in contact with the face of a divided cam 41, 42 by the spring means 37*, 38*.

The cam member 41 is fast on the fountain roll shaft 3 and its concentric cam member 42 is rotatably adjustable on said shaft so that the position of the cam member 42 with respect to the cam member 41 may be changed while the press is running, to vary the length of the cam surface to predetermine the time of the dwell of the ductor rollers 31, 32 when they are in contact with their respective ink supply rollers 14, 15. This permits the transfer of the proper amount of ink from the ink supply rollers 14, 15 to the ink feed rollers 19, 20 of the distribution.

The means which I have shown herein for rotatably adjusting the cam member 42 with respect to the cam member 41 is a reverse gear of substantially the same construction as that shown and described in my United States Letters Patent No. 1,284,212, dated November 12, 1918, and therefore only a short description of this reverse gear and its operation will be incorporated herein.

The relatively fixed cam member 41 is secured as by bolts 43 to the flange 44 of a collar 45 fast

on the fountain roll shaft 3, which cam member 41 is provided with an annular internal gear 46 meshing with a pinion 47 fast on the shaft 48 of an epicyclic gear train. Another pinion 49 fast on the shaft 48 meshes with the annular internal gear 50 of the rotatively adjustable cam member 42.

This shaft 48 also carries larger and smaller pinions 51, 52, the smaller pinion being always in mesh with an idler gear 53. The shaft 48 and the idler gear shaft are both rotatably mounted in the gear casing 54.

A shaft 55 is mounted to slide endwise in the casing 54 and it is provided exterior to the casing with a handle 56. A gear 57 within the casing is fast on the handle shaft 55, which gear may be shifted into mesh with either the larger gear 51 or the idler gear 53.

It will be understood that the handle shaft 55 which is concentric with the fountain roll shaft 3 is manually held against rotation by grasping the handle 56. The relatively movable cam member 42 will be rotated in the one or the other direction according to whether the pinion 57, carried by the shaft 55, is in mesh with the larger pinion 51 or the idler pinion 53. This will change the length of the low portion of the face of the divided cam 41, 42 for increasing or diminishing, as desired, the dwell of the ductor rollers 31, 32 when in contact with their respective ink supply rollers 14, 15, thereby varying the amount of ink transferred to the ink feed rollers 19, 20. It will also be understood that as soon as the handle 56 is released, the members of the divided cam 41, 42 will retain their adjusted position until again manually adjusted irrespective of whether the pinion 57 is in mesh with the pinion 51 or with the idler pinion 53.

From the above description it will be seen that I am enabled to provide effective means for varying the ink supplied to the distribution while the press is in operation and that also by the use of two ink supply rollers and the two ductor rollers I am enabled to transfer an adequate amount of ink from the supply rollers to the ink feed rollers of the distribution where high speed printing press operation is required.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the particular embodiment herein shown and described, but what I claim is:

1. In an inking mechanism for printing presses, an ink fountain roll, its shaft, means for driving the ink fountain roll at a slow continuous surface speed, two ink supply rollers contacting with and positively driven by the ink fountain roll at the surface speed thereof, two ink feed rollers, means for driving them at a higher surface speed, two ductor rollers and means for oscillating them between their respective ink supply and feed rollers.

2. In an inking mechanism for printing presses, an ink fountain roll, its shaft, means for driving the ink fountain roll at a slow continuous surface speed, two ink supply rollers contacting with and positively driven by the ink fountain roll at the surface speed thereof, two ink feed rollers, means for driving them at a higher surface speed, two ductor rollers, means for oscillating them between their respective ink supply and feed rollers and means for changing the length of dwell of the ductor rollers when in contact with their ink supply rollers.

3. In an inking mechanism for printing presses, an ink fountain roll, its shaft, means for driving the ink fountain roll at a slow continuous surface speed, two ink supply rollers contacting with and positively driven by the ink fountain roll at the surface speed thereof, two ink feed rollers, means for driving them at a higher surface speed, two ductor rollers and a rotary divided cam carried by the fountain roll shaft for oscillating the ductor rollers between their respective ink supply and feed rollers.

4. In an inking mechanism for printing presses, an ink fountain roll, its shaft, means for driving the ink fountain roll at a slow continuous surface speed, two ink supply rollers contacting with and positively driven by the ink fountain roll at the surface speed thereof, two ink feed rollers, means for driving them at a higher surface speed, two ductor rollers and a rotary divided cam carried by the fountain roll shaft for oscillating the ductor rollers between their respective ink supply and feed rollers, one member of the cam being fixed on the fountain roll shaft and the other member of the cam being rotatably adjustable on said shaft for varying the length of the cam surface to predetermine the time of the dwell of the ductor rollers when in contact with their respective ink supply rollers.

5. In an inking mechanism for printing presses, an ink fountain roll, its shaft, means for driving the ink fountain roll at a slow continuous surface speed, two ink supply rollers contacting with and positively driven by the ink fountain roll at the surface speed thereof, two ink feed rollers, means for driving them at a higher surface speed, two ductor rollers and a rotary divided cam carried by the fountain roll shaft for oscillating the ductor rollers between their respective ink supply and feed rollers, one member of the cam being fixed on the fountain roll shaft and the other member of the cam being rotatably adjustable on said shaft for varying the length of the cam surface to predetermine the time of the dwell of the ductor rollers when in contact with their respective ink supply rollers and a manually operated device for changing the position of the said rotatably adjustable cam member, while the press is running.

HOWARD M. BARBER.