E. J. SMITH.

INK DISTRIBUTING MECHANISM.

APPLICATION FILED JAN. 29, 1916.

1,249,681. Patented Dec. 11, 1917.

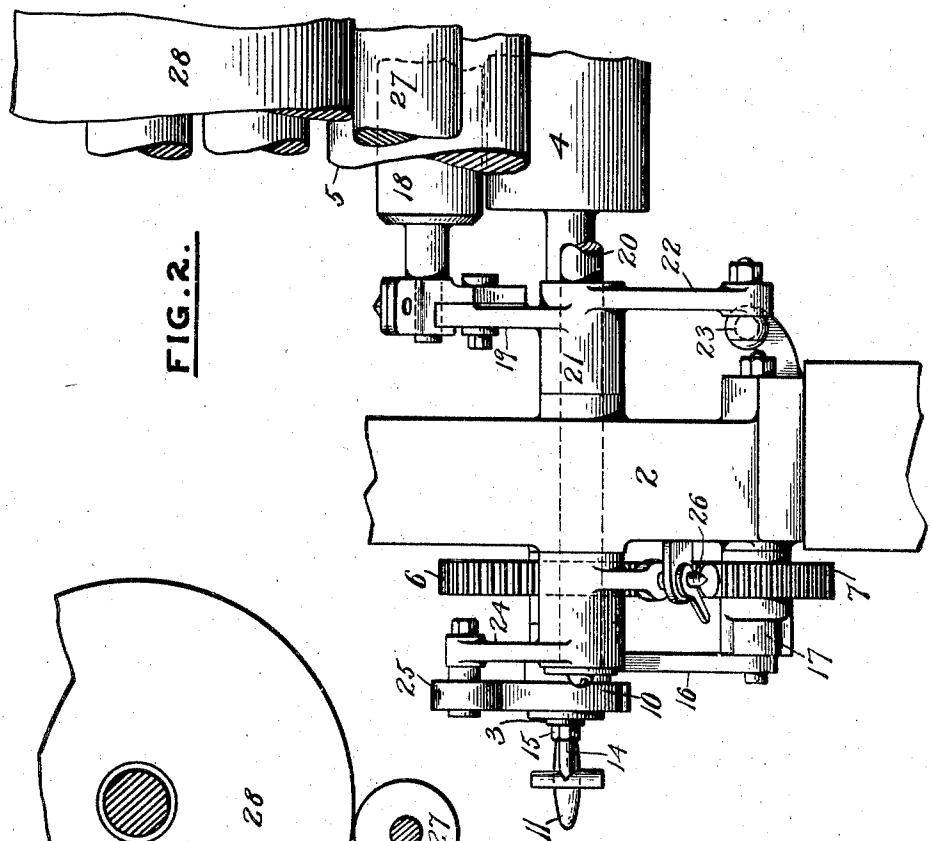


FIG. 2.

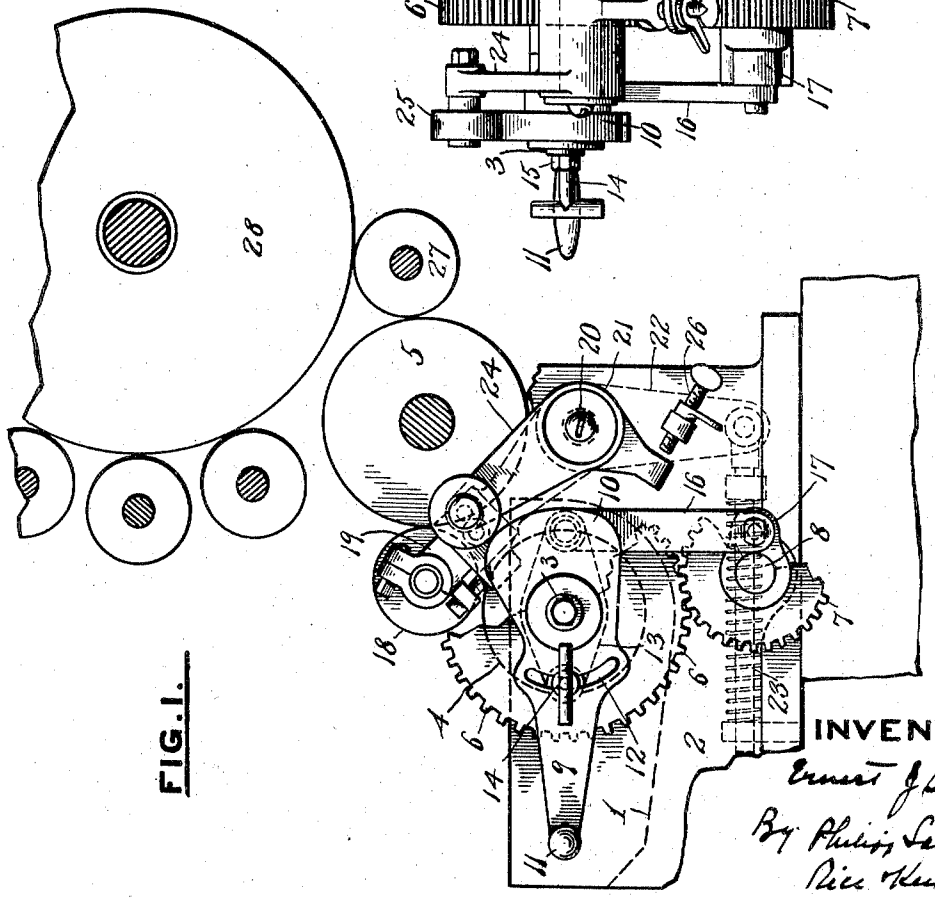


FIG. 1.

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INK-DISTRIBUTING MECHANISM.

1,249,681. Specification of Letters Patent. Patented Dec. 11, 1917.

Application filed January 29, 1916. Serial No. 74,385.

To all whom it may concern:

Be it known that I, ERNEST J. SMITH, a subject of the King of England, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Ink-Distributing Mechanism, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in inking mechanism for printing machines.

In the high speed rotary printing machines now employed, where the fountain roll is continuously driven at a fixed speed, difficulty has been experienced in uniformly regulating the supply of ink delivered by the fountain roll to the lifting roll or other distributing mechanism, by adjusting the time of contact and the duration of the contact or dwell between the lifting roll and the fountain roll. If the fountain roll is driven intermittently, usually by a ratchet mechanism, there is liability that it will be driven at a rate considerably in excess of the proper speed given it by its driving mechanism, owing to the fact that the intermittent contact with the lifting roller, which leaves the ink distributing cylinder running at a high rate of speed, imparts to the fountain roller an undesirable excess of speed. In either case, the supply of ink delivered from the fountain is not uniform, and its adjustment is difficult and unsatisfactory.

It is the object of the present invention to provide a construction in which there is a fountain roll continuously driven at a fixed rate of speed, and a lifting roll for delivering ink from the fountain roll to the distributing train, with connections for actuating the lifting roll so that the time and duration of the dwell of the lifting roll on the fountain roll may be easily and accurately adjusted, without increasing the speed of the fountain roll beyond its predetermined amount.

For a clear understanding of the invention a description of the same will be given in connection with the accompanying drawings, in which Figure 1 is a side elevation, and Fig. 2 a front elevation, certain parts being broken away, of so much of an inking mechanism for rotary printing machines as is necessary for an understanding of the invention.

Referring now to these drawings, the ink is supplied to the machine from any suitable source, as a fountain 1, suitably supported on the frame 2 of the machine. Mounted to rotate in this fountain on a shaft 3 is a fountain roll 4. In accordance with the invention, the roll 4 is positively driven and continuously at a fixed rate of speed through gearing, not shown for the sake of clearness, from the shaft of the first distributing roll 5, the roll being driven, however, at a reduced rate of speed from that of the distributer. The fountain roll is thus positively driven, and its speed is not affected by its contact with the rolls to which it delivers the ink supply, and thus a fixed and continuous amount of ink is delivered from the fountain.

Machines constructed in accordance with the invention will include a lifter roll from which the ink is delivered from the fountain roll to the distributing train, and the invention will include means whereby the lifter roll is regularly and positively lifted from contact with the fountain roll into contact with the distributing roll and back again, with means for readily adjusting the time and duration of these contacts to vary the amount of ink taken. While these means may be somewhat varied, in the particular construction illustrated the shaft 3 of the fountain roll is provided with a pinion 6 which is in mesh with a pinion 7 on a short shaft 8, by which the shaft is rotated, this shaft being mounted in any suitable bearings in the frame 2. Loosely fulcrumed on the shaft 3 before referred to is a lever 9 formed at one end to provide a cam 10, and at the other end with a handle 11. Formed in the lever at the side of the fulcrum toward the handle is a curved slot 12. Also loosely mounted on the shaft 3 of the fountain roll is a second lever 13 (see dotted lines, Fig. 1) which carries at its left hand end a pin 14 (see Fig. 2) which projects into the slot 12 before referred to and is provided with a lock nut 15 for locking the pin in any position in the slot to which it is desired to move it. By adjusting this pin in the slot, the relative positions of the two levers 9 and 13 may be adjusted as desired for purposes hereinafter referred to. At

the other end of the lever 13 is pivoted the end of a link 16, the opposite or lower end of which is pivoted to a crank 17 on the shaft 8 before referred to. With this construction, as the shaft 8 is rotated the cam lever 9 is oscillated by means of the lever 13, the throw of the cam lever 9 depending on the relative position it has with regard to the lever 13, this throw being adjusted by adjusting the pin 14 to various positions in the slot 12 and effecting an adjustment in the time of contact or dwell of the lifting roller 18 through connections which will now be described.

The lifting roller 18 is carried by a pair of arms 19, only one of which is shown, fast on a rock shaft 20, which extends across the machine. One of the arms 19 is provided with a hub 21 (see Fig. 2) from which projects an arm 22 connected to the usual spring rod construction 23, this acting to normally thrust the lifting roller 18 toward the fountain roller 4. On the rock shaft 20 is likewise fixed a lever arm 24 which carries a cam roll 25 bearing against the cam 10, before referred to, through which connections the lifter roll is rocked to and from contact with the fountain roll 4 and distributer roll 5. An adjustable stop 26, against which takes the tail of the lever 24, may be provided for limiting the throw caused by the spring 23. From the distributer 5 the ink may be delivered through other distributers 27, if desired, to a main distributer 28.

With the construction described it will be seen that the fountain roll is constantly driven at a regular rate of speed and the cam lever being regularly rocked up and down the lifting roll is at the desired intervals moved by the lever into alternate contact with the fountain roll and the ink distributer roll. The timing and dwell of the lifter roll is very easily adjusted, it only being necessary to loosen the pin 14 in the slot and readjust the relative positions of the levers 9 and 13. This construction, being on the outside of the machine, is accessible and readily gotten at. Furthermore, the fountain roll being positively and constantly driven, is not affected as to its ink delivery by the rotation of the lifter roll, which leaves the distributer roll running at a very high rate of speed, and the lifter roll remains in contact with the fountain roll just so long as it is permitted to do so by the cam, without affecting the speed of rotation of the fountain roll.

While the invention has been shown and described in its preferred form, it will be understood that certain changes and variations may be made in the mechanism by which the invention is carried into effect without departing therefrom.

What is claimed is:

1. In an inking mechanism for printing machines, the combination with a fountain roll driven at a constant speed, of a lifter roll, an oscillating cam for operating the roll, and connections operated from the fountain roll for oscillating the cam.

2. In an inking mechanism for printing machines, the combination with a fountain roll driven at a constant speed, of a lifter roll, an oscillating cam for operating the roll, connections operated from the fountain roll for oscillating the cam, and connections for varying the oscillating movement of the cam.

3. In an inking mechanism for printing machines, the combination with a fountain roll and means for driving it, of a lifter roll, an oscillating cam for operating the roll, a lever for the cam, a second lever pivoted to the first lever, adjustable means connecting the levers, and means for rocking the levers.

4. In an inking mechanism for printing machines, the combination with a fountain roll and means for driving it, of a lifter roll, an oscillating cam for oscillating the roll, a lever for the cam, a second lever pivoted to the first lever, a pin and slot connection between the levers for adjusting them relatively to each other for varying the throw of the cam, and means for rocking the levers.

5. In an inking mechanism for printing machines, the combination with a fountain roll driven at a constant speed, of a lifter roll, an oscillating cam for oscillating the roll, a lever for the cam, a second lever, adjustable means connecting the levers, means for locking the levers together in adjustable position, and means for rocking the levers.

6. In an inking mechanism for printing machines, the combination with a fountain roll driven at a constant speed, of a lifter roll, a shaft operated from the fountain roll, a crank operated from the shaft, and an adjustable oscillating cam actuated from the crank for oscillating the cam.

In testimony whereof, I have hereunto set my hand.

ERNEST J. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."