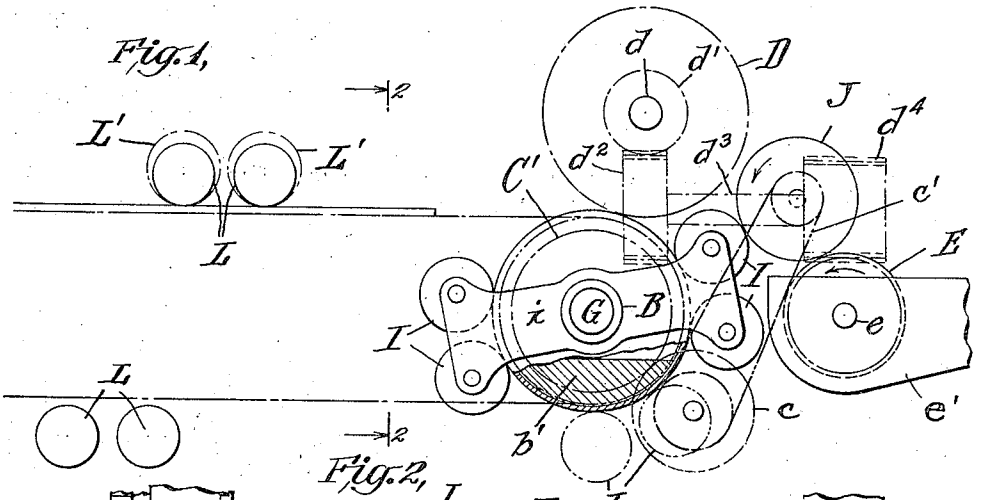
Apr. 17, 1923. 1,452,051

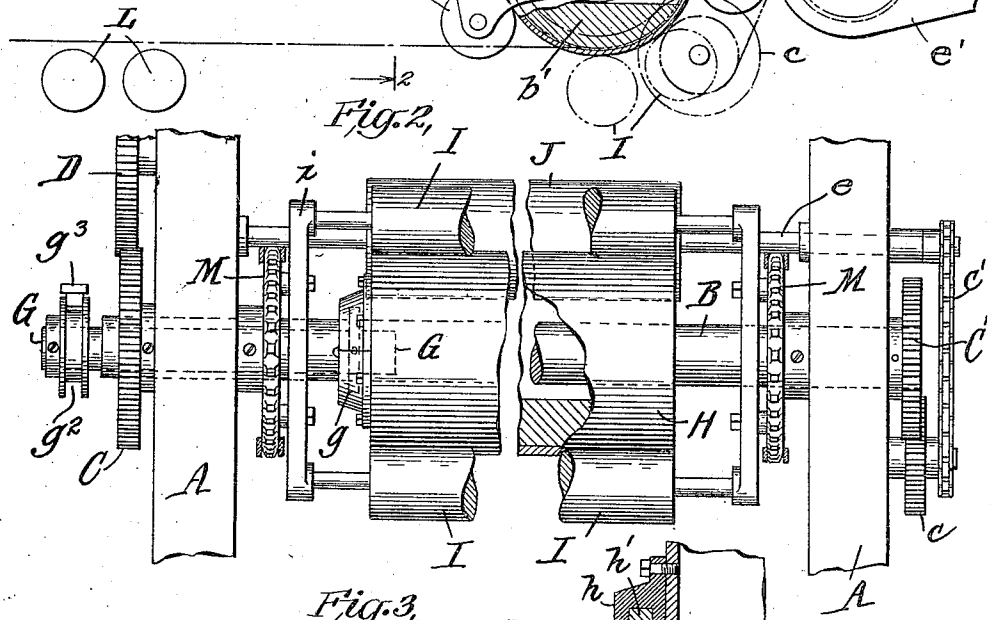
C. A. KELLOGG

INKING MECHANISM FOR PRINTING PRESSES

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Fig. 1,





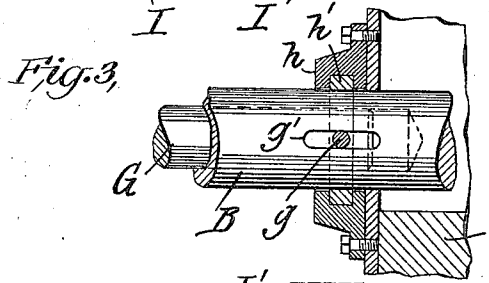
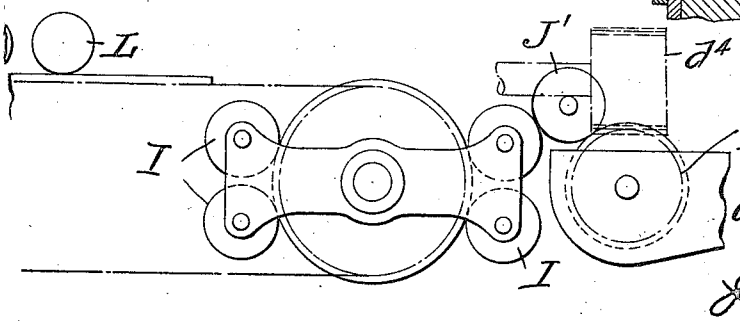


Fig. 4,



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INKING MECHANISM FOR PRINTING PRESSES

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Fig. 5

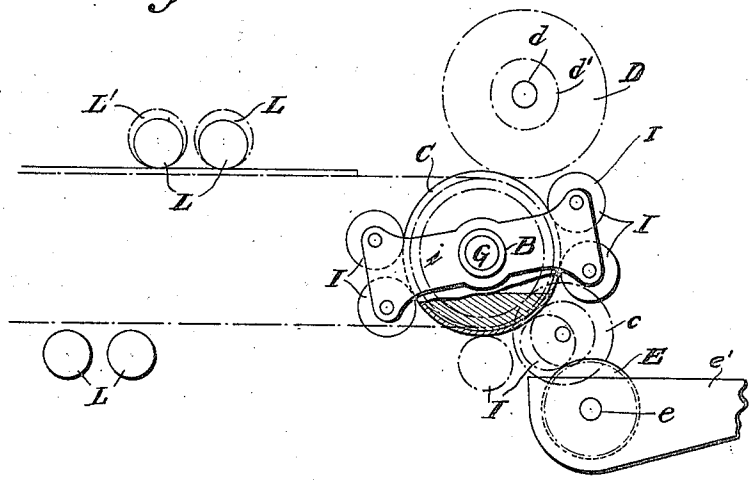


Fig. 6

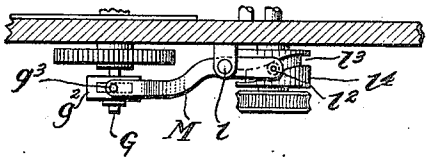
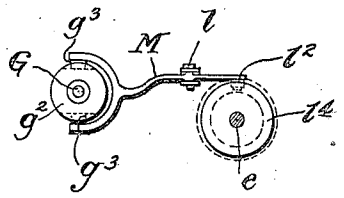


Fig. 7



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Patented Apr. 17, 1923. 1,452,051

UNITED STATES PATENT OFFICE.

CARL A. KELLOGG, OF BROOKLYN, NEW YORK.

INKING MECHANISM FOR PRINTING PRESSES.

Application filed March 26, 1919. Serial No. 285,340.

To all whom it may concern:

Be it known that I, CARL A. KELLOGG, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Inking Mechanism for Printing Presses, of which the following is a specification.

This invention relates to printing machines and is particularly directed to improvements in inking mechanisms.

The object of the invention is to provide an inking mechanism wherein maximum efficiency may be had in the distribution of ink on the ink drum so that the form rollers may be more efficiently supplied with ink therefrom than heretofore.

The present invention is an improvement on the inking mechanism shown in my co-pending application filed March 26th, 1919, Ser. No. 285,388 on "inking mechanism for printing presses," and one of the objects of the present invention over those of the co-pending case is the simplification of the parts in the mounting and operation of the inking mechanism.

Features of the invention other than those specified will be apparent from the hereinafter detailed description taken in conjunction with the accompanying drawings.

In the accompanying drawings I have illustrated one practical form of the invention, but the construction therein shown is to be understood as illustrative only, and not as defining the limits of the invention.

Figure 1 is a diagrammatic showing of the inking mechanism of my improved press, and certain associated parts;

Figure 2 is a section on line 2—2 of Figure 1, showing the parts less diagrammatic;

Figure 3 is an enlarged detail view of my construction;

Figure 4 is a view similar to Figure 1, but illustrating a modified form.

Figure 5 is a view similar to Figure 1, but illustrating modified mechanism for supplying ink to the ink drum.

Figure 6 is a fragmental plan view of means for longitudinally reciprocating the ink drum; and,

Figure 7 is an elevation of the drum reciprocating means.

Referring to the drawings A designates the frame of a printing machine, in the opposite sides of which frame a hollow shaft B is journalled for rotation. Mounted on the opposite ends of the shaft B and exteriorly of the sides of the frame, are affixed gears C and C′, the shaft being driven through gear C from a driving gear D which imparts rotation to the shaft B and to sprocket wheels M fixed on said shaft.

Gear D, is mounted on shaft d, on which is also fixed a worm gear d' in mesh with a pinion d^2, connected by a shaft d^3 to a second worm wheel d^4, which serves to impart rotation to a shaft e on which is mounted a fountain roll E. The fountain roll is partially immersed in an ink fountain e. The shaft d thus serves to simultaneously drive both the shaft B and the fountain roller E.

Positioned on the shaft B so as to be supported thereby and in co-axial relation thereto is an ink drum H. The shaft B extends directly through the drum and is rotatably associated therewith, so that the shaft may turn and drive the sprockets M without necessarily imparting rotary movement to the drum.

In accordance with the present invention, the drum is so constituted as to be non-rotatable while the shaft B rotates, and in order to accomplish this without the employment of extraneous means such as disclosed in my co-pending application aforesaid, I weigh the drum interiorly as at b', and such weighted portion is acted upon by gravity to maintain the drum against rotation. The drum is, however, mounted for longitudinal reciprocation on the shaft B, and is moved in end-wise by means of connections next to be described.

Drum H is provided at one end with a hub h having formed on its interior an annular channel adapted to rotatably receive the ring h', diametrically through which is passed a pin g, slots g' being provided in the shaft B, through which the pin g extends. A stub shaft G extends into the hollow shaft B and is secured to pin g which is fitted tightly to a hole in the shaft G. Through these connections, it will appear that as the shaft B rotates, shaft G turns therewith, and the pin g serves to rotate the ring h' in the channel of the drum hub. However, through the slotted connection of the pin g with the shaft B, longitudinal movement, may be imparted to the shaft G, and, as said shaft is reciprocated, serves to impart simultaneous reciprocation to the drum H. Various means may be provided for reciprocating the shaft G, such for ex-

ample as the vibrator arm M, which may be conveniently pivoted at l to the frame of the machine. One end of the arm M is forked and the fork is provided with trunnions g^3 engaging a channel in a hub g^2 fixed on the shaft G. The other end of the vibrator arm carries a follower l^2, which works in a cam track l^3, formed in a hub 14, fixed to the shaft e of the fountain roll. When the shaft e rotates the arm M is vibrated and the ink drum longitudinally reciprocated.

Associated with the drum H are a plurality of distributor rolls I, supported at their opposite ends on brackets i, mounted on the sprocket wheels M for rotation therewith. As the sprockets rotate the distributor rolls I traverse the circumference of the drum while the drum remains circumferentially stationary, but is longitudinally reciprocated in the manner described. It is through this conjoint rotation of the distributor rolls and longitudinal reciprocation of the ink drum that high efficiency results in the distribution of ink fed to the said drum in any suitable way.

Various means may be employed to feed the ink to the drum, and this means may consist either in the application of ink directly to the drum, the application of ink directly from an ink fountain to the distributor rolls, and thence to the drum, or through the medium of a pick-up roll. If a pick-up roll is employed, the construction may be as shown in Figure 1, in which instance, the pick-up roll J may be mounted on a shaft e so positioned that the pick-up roll and fountain roller E will almost contact, and rotation may be imparted to said ductor roll through sprocket and chain connections c' driven by a gear c, adapted to mesh with the gear C'.

The position of the fountain roller E and the pick-up roll J is such that, as the distributor rolls I traverse the drum H, they will be brought into engagement with the pick-up roll in succession, and, receiving ink therefrom, will distribute it on the drum.

If it is desired to dispense with the pick-up or intermediate roller, the fountain and fountain roller may be positioned as shown in Figure 5, so that the distributing rollers I will engage directly with the fountain roll E, instead of through an intermediate or pick-up roll. When ink is applied to the distributor rolls either through a pick-up or intermediate roll or directly from the fountain, the form rollers L are preferably made of less diameter than the distributor rolls, so that in the passage of the form rollers around the drum in the usual manner, they will not take ink from the pick-up or intermediate roller. If desired, however, the form rollers may be the same size as the distributing rollers as shown in Figure 1 in dot and dash lines L' and also take ink the same as the distributing rollers from the pick-up roller or intermediate roller.

The manner of mounting the form rollers is the same as in the said co-pending application, said rollers being mounted on endless chains adapted to pass over the sprockets M, supported by and driven by the shaft B which also carry the distributor roll brackets. The sprockets H are of such diameter as to lead the form rollers over the surface of the drum H to receive ink therefrom.

The pick-up roller J of Figures 1 and 2 is shown as positively driven, but, if desired, this roller may be merely in the form of an intermediate roller J', shown in Figure 4, wherein said roll is rotated from the fountain roll E by virtue of its engagement therewith.

In accordance with either of the foregoing methods of applying ink to the drum H, the ink, after application to the drum is thoroughly distributed through the dual movement between the distributor rolls and the drum, in a thin pellicle or sheet of uniform thickness, over the entire face of the drum, with the result that it is uniformly applied to the form rollers.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:

1. Inking mechanism for printing presses embodying an ink supply, a curved ink surface, a distributor roller bodily rotatable about the center of curvature of the ink surface and adapted to take ink from the ink supply and feed it directly to the surface, and to distribute the ink on said surface, an endless chain a form roller mounted on the chain and operated thereby to traverse the ink surface and be charged therefrom.

2. Inking mechanism for printing machines embodying a substantially cylindrical ink drum and distributor rollers mounted to traverse the circumference of the drum in diametrically opposite relation to one another, and means for reciprocating the ink drum longitudinally of its axis.

3. Inking mechanism for printing presses embodying an ink supply, a curved ink surface, and form and distributor rollers cooperating with said surface, said distributor roller being operable at a fixed distance from the center of curvature of the ink surface and directly charged with ink from the ink supply.

4. Inking mechanism for printing presses embodying an ink supply, a curved ink surface, and a plurality of form and distributor rollers cooperating with said surface, said distributor rollers being operable at a fixed distance from the center of curvature of the ink surface and being directly charged with ink from the ink supply.

5. Inking mechanism for printing presses

embodying a form, an ink surface, an ink supply, a roller associated with the ink supply and charged thereby, a distributor roller adapted to periodically engage with and take ink from the other roller and apply said ink directly to the ink surface, and a form roller, independent of the distributor roller and adapted to take ink from the ink surface and deposit it on the form.

6. Inking mechanism for printing presses embodying a form, a substantially cylindrical ink surface, a roller associated with the ink supply and charged thereby, and a distributor roller adapted to periodically engage with and take ink from the other roller and traverse the cylindrical ink surface to apply ink directly to the ink surface and distribute it thereon, in combination with a form roller, independent of the distributor roller, and adapted to take ink from the ink surface and apply it to the form.

7. In a printing press, an ink surface, a form, a form roller to traverse the form and the ink surface, a distributor roller also adapted to traverse the ink surface, and a driven roller adapted to take ink directly from the ink supply and apply the same directly to the distributor roller while said distributor roller is in contact with the ink surface.

8. In a printing press, an ink surface, a flat form, a form roller adapted to traverse the flat form and the ink surface, an ink fountain, an ink supply roller immersed therein, a distributor roller adapted to traverse the ink surface, and a driven roller adapted to take ink directly from the ink supply roller and apply the same directly to the distributor roller.

9. Inking mechanism for printing presses embodying an ink supply, an ink surface and a distributor roller adapted to rotate about said surface while maintained in continuous engagement therewith, and when so rotated to take ink from said supply and uniformly distribute it throughout said surface.

10. Inking mechanism for printing presses embodying a form roller, a shaft for operating said form roller, a substantially cylindrical ink surface positioned in the path of the form roller and mounted on said shaft, and gravity operated means for automatically maintaining the cylindrical ink surface against rotation while the shaft rotates.

11. Inking mechanism for printing presses embodying a form roller, a shaft for operating said form roller, and an ink drum positioned in the path of the form roller and mounted on said shaft, and means for maintaining the drum against rotation while the shaft rotates, and means for bodily reciprocating the ink drum.

12. Inking mechanism for printing presses embodying an ink supply, a curved ink surface, and a plurality of distributors operable at a fixed distance from the center of curvature of the ink surface and adapted at all times to engage with said surface to carry ink from the ink supply to said surface.

13. Inking mechanism for printing presses embodying an ink supply, an ink drum, a plurality of distributors co-operating with the ink supply and with said drum to supply ink to the latter, and means for bodily reciprocating said drum longitudinally of its axis.

14. A printing press embodying a form bed, a form roller, a shaft, sprockets carried by said shaft for operating the form roller, an ink drum supported by said shaft independently of the form bed, and means for precluding rotation of the ink drum while the shaft revolves.

15. A printing press embodying a form roller, a shaft, sprockets carried by said shaft for operating the form roller, an ink drum supported by said shaft, a form bed supported independently of the shaft and ink drum, and means for precluding rotation of the ink drum while the shaft revolves, in combination with means for reciprocating the ink drum longitudinally of the shaft.

16. Inking mechanism for printing presses embodying a pair of rotatable shafts, sprockets on said shafts, chains co-operating with said sprockets, and form rollers carried by said chains, in combination with an ink drum mounted on one of said shafts for supplying ink to the form rollers, and means for precluding the rotation of the ink drum.

17. Inking mechanism for printing presses embodying a pair of rotatable shafts, sprockets on said shafts, chains co-operating with said sprockets, and form rollers carried by said chains, in combination with an ink drum supported by one of said shafts, and means for precluding rotation of the ink drum when the shafts rotate.

18. Inking mechanism for printing presses embodying a pair of rotatable shafts, sprockets on said shafts, chains co-operating with said sprockets, and form rollers carried by said chains, in combination with an ink drum mounted on one of said shafts, and adapted to supply ink to the form rollers, means for precluding rotation of said drum, and means for reciprocating said drum longitudinally of the shaft.

19. Inking mechanism for printing presses embodying an ink drum, a rotatable shaft for supporting the weight of said drum, means for holding the drum against rotation, and a second shaft co-axial with the first and rotatably connected with said drum for reciprocating the drum longitudinally of said shafts.

20. Inking mechanism for printing presses embodying a pair of co-axial shafts, one of which is longitudinally movable with respect to the other, and both of which are rotatable, an ink drum supported on said shafts, means associated with the drum for maintaining it against rotation, sprockets mounted on one of said shafts, and a form roller actuated by said sprockets to traverse the ink drum, and means co-operating with the longitudinally movable shaft for reciprocating the same, for the purpose of causing reciprocation of the ink drum while said drum is held against rotation, in combination with a distributor roller supported by one of said shafts and caused thereby to traverse the circumference of a non-rotatable drum.

21. A printing press embodying a form bed, a substantially cylindrical ink drum separate and independent of the form bed, means for maintaining said ink drum against rotation, a plurality of distributor rollers, each of which is rotatable on its own axis, and simultaneously movable about the circumference of the drum, and means for reciprocating the drum longitudinally of its axis while the distributor rollers traverse the circumference thereof while the form bed remains relatively stationary.

22. Inking mechanism for printing presses embodying a rotatable shaft, an ink drum having a curved surface mounted on said shaft, means for precluding rotation of the drum, brackets fixed to said shaft, and distributor rollers carried by said brackets and engaging with the periphery of the drum, said drum being held against rotation while the distributor rollers traverse the periphery thereof.

23. Inking mechanism for printing presses embodying a rotatable shaft, an ink drum having a curved surface mounted on said shaft, means for precluding rotation of the drum, brackets fixed to said shaft, and distributor rollers carried by said brackets and engaging with the periphery of the drum, said drum being held against rotation while the distributor rollers traverse the periphery thereof, and means for reciprocating the drum longitudinally of its axis.

24. A printing press embodying a form bed, an ink drum separate and independent of the form bed and independently mounted, and a plurality of pairs of distributor rollers, each of which rollers is rotatable on its own axis, and all of which rollers are adapted to gyration about the axis of the drum.

25. Inking mechanism for printing presses embodying an ink drum, and a plurality of pairs of distributor rollers, each of which rollers is rotatable on its own axis, and all of which rollers are adapted to gyration about the axis of the drum, in combination with a form roller adapted to be brought into and out of engagement with the drum.

26. Inking mechanism for printing presses embodying a plurality of concentric rotatable shafts, means for rotating said shafts, and an ink surface supported by one of said shafts.

27. In a printing press, a form bed, in combination with inking mechanism embodying an ink supply, an inking surface separate from and independent of the form bed, a distributor roller co-operating with said surface, a form roller, and means operable to cause both of said rollers to traverse the inking surface.

In testimony whereof, I have signed my name to this specification.

CARL A. KELLOGG.