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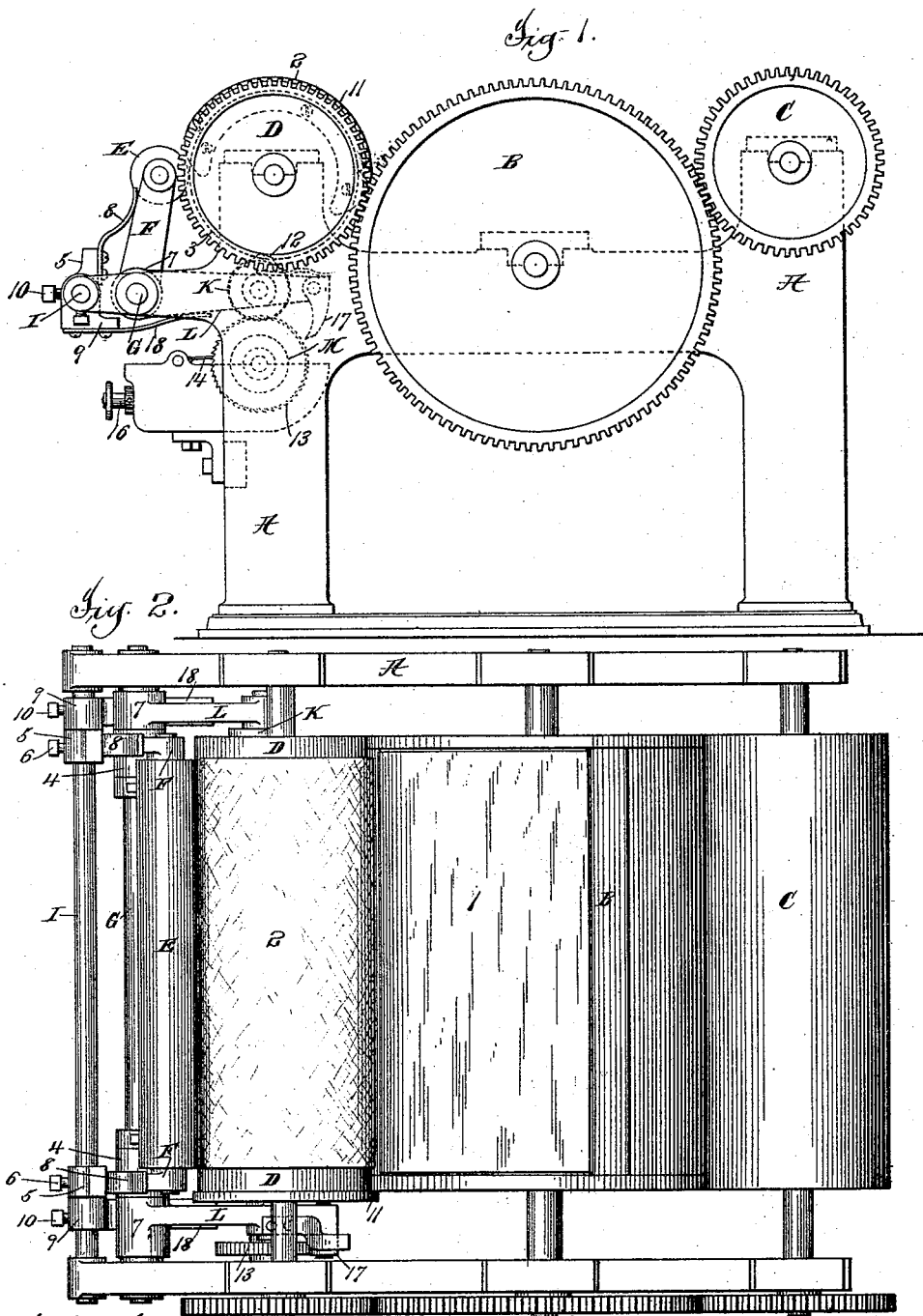
3 Sheets—Sheet 1.

L. C. CROWELL.

INKING MECHANISM FOR PRINTING MACHINES.

No. 492,759.

Patented Feb. 28, 1893.



Attest:
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S. Henthall.

Inventor:
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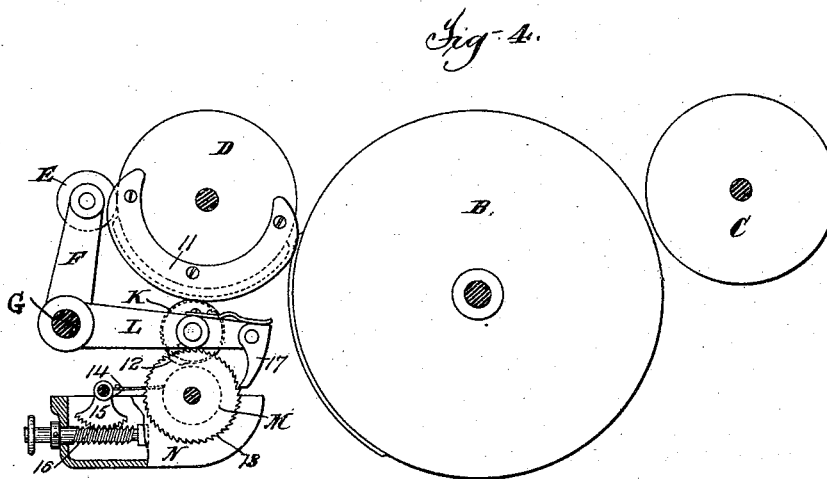
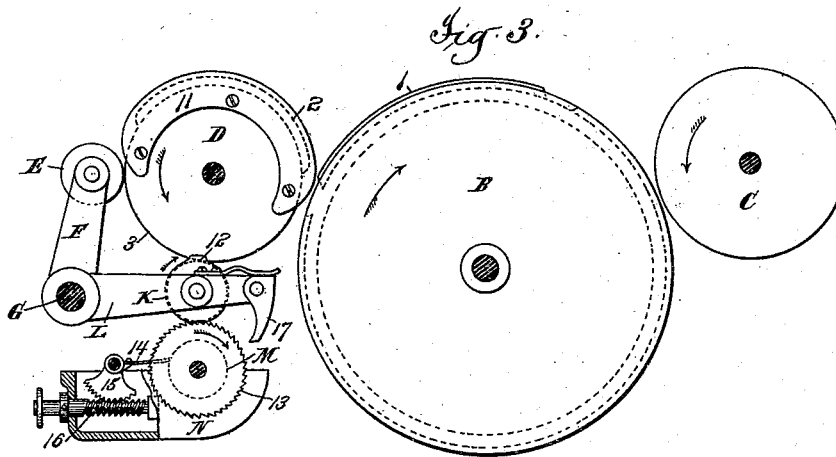
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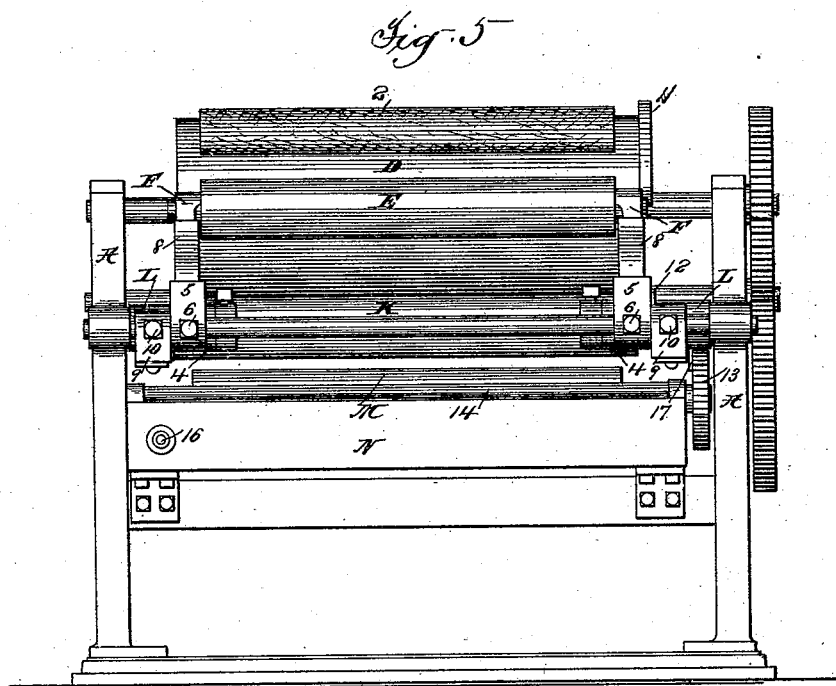


Fig. 6.

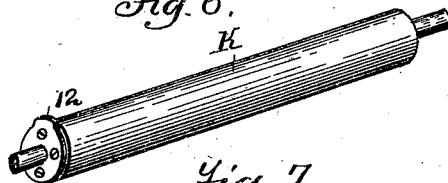
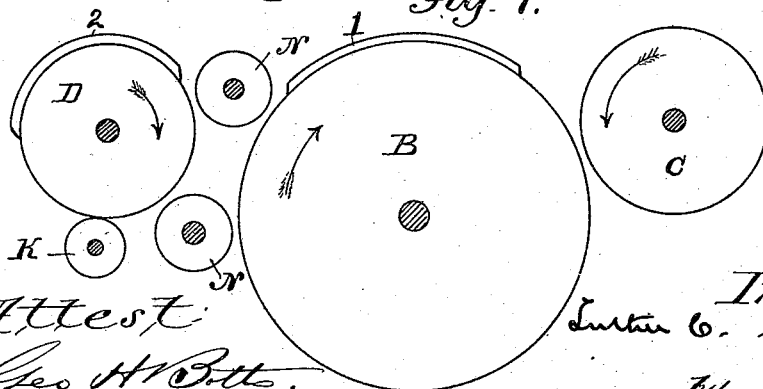


Fig. 7.



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UNITED STATES PATENT OFFICE.

LUTHER C. CROWELL, OF BROOKLYN, ASSIGNOR TO ROBERT HOE, STEPHEN D. TUCKER, THEODORE H. MEAD, AND CHARLES W. CARPENTER, OF NEW YORK, N. Y.

INKING MECHANISM FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 492,759, dated February 28, 1893.

Application filed November 2, 1891. Serial No. 410,635. (No model.)

To all whom it may concern:

Be it known that I, LUTHER C. CROWELL, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Inking Mechanism for Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to improve the construction of inking mechanism for printing machines, and especially to provide an efficient inking mechanism which shall be more simple and compact than those heretofore in use.

In carrying out my invention, I use a cylinder having a segmental inking surface by which the form is inked, either directly or through the usual form rolls or equivalent devices, and a segmental distributing surface receiving the ink from the ink supply, this distributing surface being on a different portion of the cylinder from the inking surface and not engaged by the form, form rolls, or other ink receiving devices, so that the cylinder has independent inking and distributing surfaces as distinguished from those constructions in which the same surface is used both as the receiving and distributing surface and the inking surface, these independent inking and distributing surfaces being arranged circumferentially of the cylinder so that the ink may be transferred to the inking surface from the distributing surface by a roll engaging both surfaces in succession as the cylinder rotates.

With this construction of inking and distributing cylinder I may use any suitable devices for supplying ink to the distributing surface of the cylinder but I preferably combine therewith a vibrating transfer roll, which engages only the distributing surface of the inking and distributing cylinder, and the usual intermittently rotated fountain roll from which the transfer roll receives its ink, and I provide a construction by which these parts are actuated from the inking and distributing cylinder through simple connections.

For a full understanding of my invention a detailed description of a simple construction embodying the same in its preferred form will now be given, and the features forming my invention specifically pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification. Figure 1 is a side elevation of a simple printing machine with an inking mechanism embodying my improvements. Fig. 2 is a plan view of the same. Figs. 3 and 4 are diagrammatic sections taken inside the frame, and showing the parts in different positions. Fig. 5 is a rear end elevation of the inking mechanism, and Fig. 6 is a perspective of roll G. Fig. 7 shows a modification.

In the drawings A is the frame of the machine in which is mounted the type cylinder B and impression cylinder C, the type cylinder B carrying the form or type plate 1. In the frame A is mounted a cylinder D forming an inking and distributing cylinder, this cylinder being provided with the segmental inking pad 2 forming an inking surface, the surface of the cylinder not occupied by the pad forming a distributing surface 3. The pad is shown as applied so that the inking surface 2 is higher than the distributing surface 3, and this construction is preferable as avoiding all danger of the distributing surface engaging the type plate or type cylinder during its rotation, even though the type plate be level with, or raised but slightly above the type cylinder and be brought opposite the distributing surface, but it will be understood that this construction is not essential, but that the inking and distributing surfaces may be of the same height, and the proper distance between the distributing surface and type cylinder be secured in any other suitable manner.

In the construction illustrated, in which the type plate 1 is shown as raised above the level of the type cylinder B, it is evident that the inking pad 2 may be placed level with the surface of cylinder D, the cylinders B, D being brought closer together so that the type plate will engage the inking pad, the parts being

timed as shown so that the type plate is brought opposite and in position to engage the inking pad at each second revolution of the latter and at no time comes opposite the distributing surface 3. With the inking pad raised above the surface of cylinder D as shown, it is evident that the type plate 1 may be level with the surface of cylinder B. This cylinder is shown as mounted so that the inking pad 2 engages the type form 1 and the ink is delivered directly thereto, and the three cylinders B, C, D are geared together so that they are driven directly from a single source of power. It will be understood, however, that the usual form rolls may be employed between the cylinder D and type cylinder B if desired, in which case the form rolls will be mounted to engage the inking surface 2 and type form 1, but not the distributing surface 3, as shown in Fig. 7 in which a construction employing form rolls N is illustrated. The cylinder D is shown as one-half the size of the type cylinder B, so that the inking pad engages the type form only at each second revolution of the former and this construction is preferable as a better distribution of the ink is obtained, but it will be understood that this construction is not essential.

The ink is distributed upon the distributing surface 3 of the cylinder D and transferred therefrom to the inking surface 2 by a roll E, which is preferably mounted as shown, in arms F carried by sleeves 4 loose upon the shaft G and spring pressed by means of springs 8 so that the roll E is held against the distributing surface 3, and yields against the pressure of spring 8 to allow the roll to pass over the raised inking surface 2. The springs 8 are carried by sleeves 5 adjustably secured upon the shaft I by means of set screws 6, so that the pressure of the springs may be adjusted as desired.

The ink may be supplied to the distributing surface 2 of the cylinder D in any suitable manner, but I prefer to use the common construction of an intermittently rotating fountain roll and vibrating transfer roll, and to prevent the engagement of the transfer roll with the inking surface 2, and secure the proper movements of the transfer and fountain rolls I provide the following construction.

The transfer roll K is carried by arms L mounted loosely by sleeves 7 upon rod G, these arms being spring pressed by springs 18 so as to hold the transfer roll K normally in engagement with the distributing surface 3, and the springs 18 being preferably adjustably mounted on shaft I by sleeves 9 and set screws 10, as in the case of springs 8. The cylinder D is provided at one end with a plate 11, opposite the inking surface 2, and projecting outside the same, which plate engages the transfer roll K while the inking surface 2 is opposite the transfer roll and depresses the

arms L against the pressure of springs 18 so as to hold the transfer roll out of engagement with the inking surface, the transfer roll being raised by the springs 18 so as to re-engage the distributing surface when released by the plate 11. For vibrating the transfer roll so as to receive a supply of ink the transfer roll is provided at one end in line with the projecting plate 11 with a projection 12, which is engaged by the plate 11 at certain revolutions of the transfer roll and cylinder so as to depress the transfer roll sufficiently to engage with the fountain roll. In place of the plate 11 on cylinder D, it is evident that a plate or disk on transfer roll K, engaging the edge of the inking pad or a plate of the same height as the pad, may be used, this disk carrying the projection 12.

The ink supply for the transfer roll may be of any suitable form. As shown it consists of a fountain and fountain roll, as usual in similar constructions. The fountain roll M is mounted in the fountain N below the transfer roll, and is provided with the usual ratchet wheel 13 for securing its rotation to bring a fresh inking surface opposite the transfer roll. A doctor 14 adjustable by the segment 15 and worm shaft 16 is shown, but this is immaterial as far as the present invention is concerned. For the purpose of rotating the fountain roll M, one of the arms L carrying the transfer roll K is extended beyond the transfer roll, and carries a spring pressed pawl 17 adapted to engage the ratchet wheel 13 on the depression of arms L by engagement of the plate 11 and projection 12 so as to secure the rotation of the fountain roll simultaneously with the depression of the transfer roll K into engagement with the same.

The operation of the devices will be understood from a brief description in connection with the drawings.

In the position shown in Figs. 1 and 3 the type form 1 has just been inked by the inking surface 2, and the inking surface is just about to receive a fresh supply of ink from the roll E, the distributing surface 3 being in engagement with and receiving ink from the transfer roll K, this supply of ink being transferred to the inking surface 2 on the next revolution of the cylinder.

In the position shown in Fig. 4 the cylinder D has made one complete revolution from the position shown in Fig. 3 and is on the second revolution, the inking surface 2 having received ink twice from the roll E and the type form 1 being just about to receive a fresh supply of ink from the inking surface. The roll E has just passed off the inking surface and is in engagement with the distributing surface 3 from which it receives the fresh supply of ink to be transferred to the inking surface on the next revolution of the cylinder, the roll being held in contact with the distrib-

uting surface by the springs 8. The projecting plate 11 opposite the inking surface 1 is in engagement with the transfer roll K, and the latter is depressed thereby, so as to be held out of engagement with the cylinder D until the inking surface has passed the roll.

The transfer roll K, is not brought into engagement with the fountain roll M, nor is the pawl 17 actuated to rotate the fountain roll on every depression of the transfer roll K by engagement of the plate 11 with the roll. At certain revolutions of the cylinder, however, it will be seen that the plate 11 comes in contact with the projecting lug 12, so that the arms L are further depressed against the tension of springs 18, and the transfer roll is carried into contact with the fountain roll to receive a fresh supply of ink therefrom, the pawl 17 simultaneously engaging the ratchet 13 and rotating the fountain roll to bring a freshly inked portion of its surface into position for engagement with the transfer roll at its next depression.

It will be understood that my invention is not to be limited to the exact construction shown, but that many modifications may be made therein without departing from my invention.

What I claim is—

1. The combination with a cylinder having a segmental inking surface and an independent segmental distributing surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, and a roll engaging both the inking and distributing surfaces, substantially as described.

2. The combination with a cylinder having a segmental inking surface and an independent segmental distributing surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, and means for supplying ink to the distributing surface, substantially as described.

3. The combination with a cylinder having independent segmental inking and distributing surfaces, the distributing surface being of less height than the inking surface, of a spring pressed roll engaging both the inking and distributing surfaces, and a roll engaging and supplying ink to the distributing surface, substantially as described.

4. The combination with a cylinder having independent segmental inking and distributing surfaces, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both

the inking and distributing surfaces, a roll engaging and supplying ink to the distributing surface, and means for moving said roll out of position to engage the inking surface, substantially as described.

5. The combination with a cylinder having independent segmental inking and distributing surfaces and having a projection opposite the inking surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, and a roll engaging and supplying ink to the distributing surface and moved out of engagement with the inking surface by engagement with the projection on the cylinder, substantially as described.

6. The combination with a cylinder having independent segmental inking and distributing surfaces, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, an ink supply, a vibrating transfer roll engaging and supplying ink to the distributing surface, and means for moving the roll out of engagement with the inking surface and into contact with the ink supply, substantially as described.

7. The combination with a cylinder having independent segmental inking and distributing surfaces and a projection opposite the inking surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, an ink supply, and a vibrating transfer roll engaging and supplying ink to the distributing surface but moved out of position to engage the inking surface by the projection on the cylinder, said transfer roll having a projection adapted to be engaged by the projection on the cylinder for moving the transfer roll into contact with the ink supply, substantially as described.

8. The combination with a cylinder having independent segmental inking and distributing surfaces and a projection opposite the inking surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, a fountain and fountain roll having a ratchet, spring pressed pivoted arms carrying a pawl adapted to engage the ratchet on the depression of the arms, a transfer roll carried by said arms and engaging the distributing surface but moved out of contact with the inking surface

by said projection on the cylinder, said transfer roll being provided with a projection adapted to be engaged by the projection on the cylinder at certain revolutions of the transfer roll, whereby the arms are depressed to carry the transfer roll into contact with the fountain roll and to rotate the latter, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LUTHER C. CROWELL.

Witnesses:

THOS. F. KEHOE,
C. J. SAWYER.