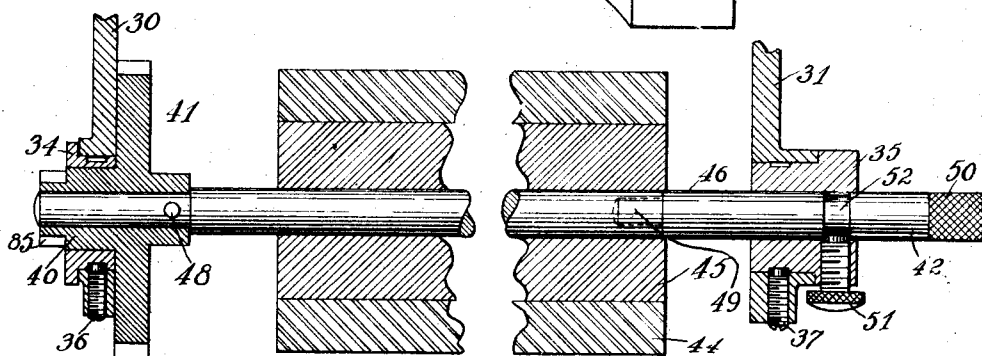
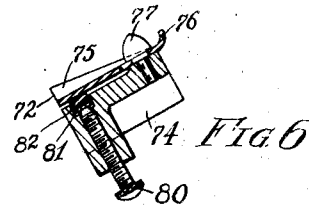
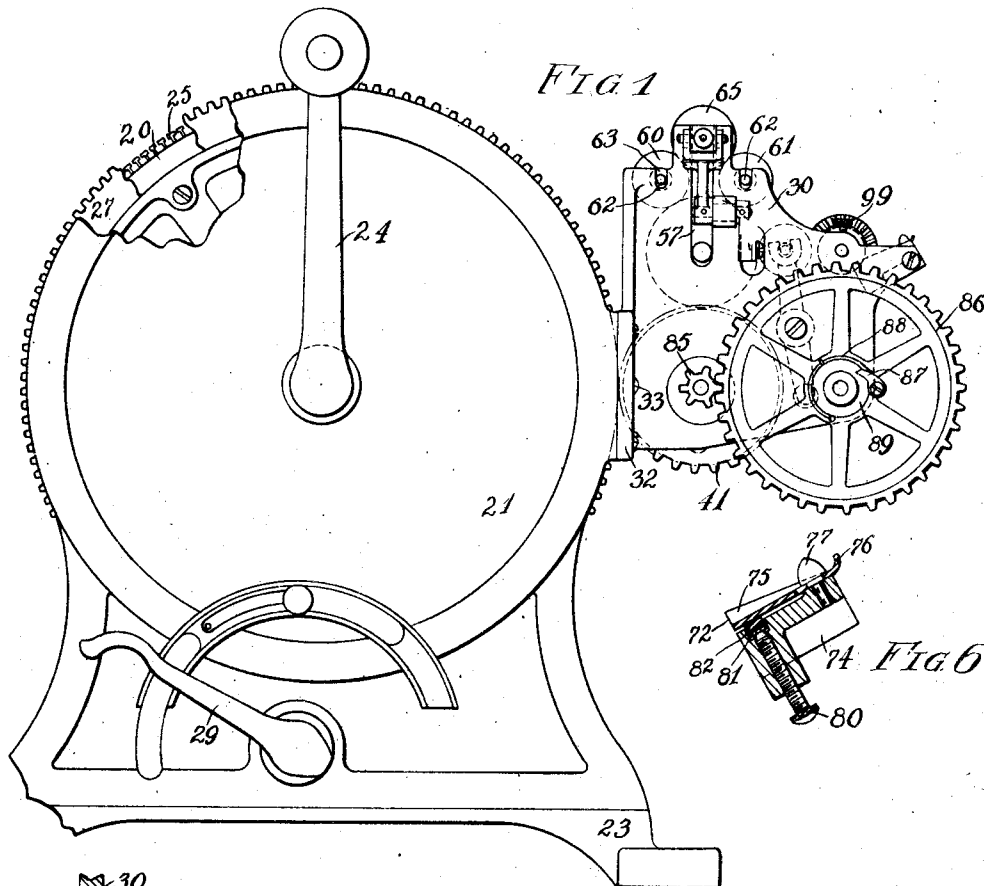


J. J. ZEITZ.
 INKING ATTACHMENT FOR PRINTING PRESSES.
 APPLICATION FILED MAR. 19, 1908.

1,031,311.

Patented July 2, 1912.

3 SHEETS—SHEET 1.



WITNESSES:

FIG 5

INVENTOR:

Brennan & West.
 Arthur S. Remberg

John J. Zeitz.
 BY Baker, Foul & Hall
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3 SHEETS-SHEET 2.

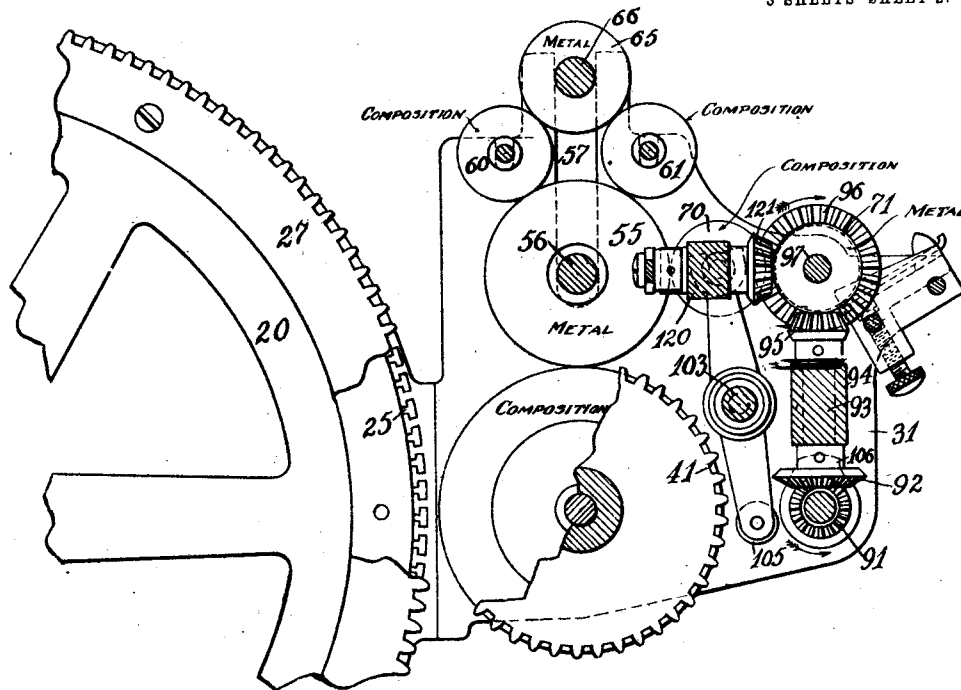


FIG. 2

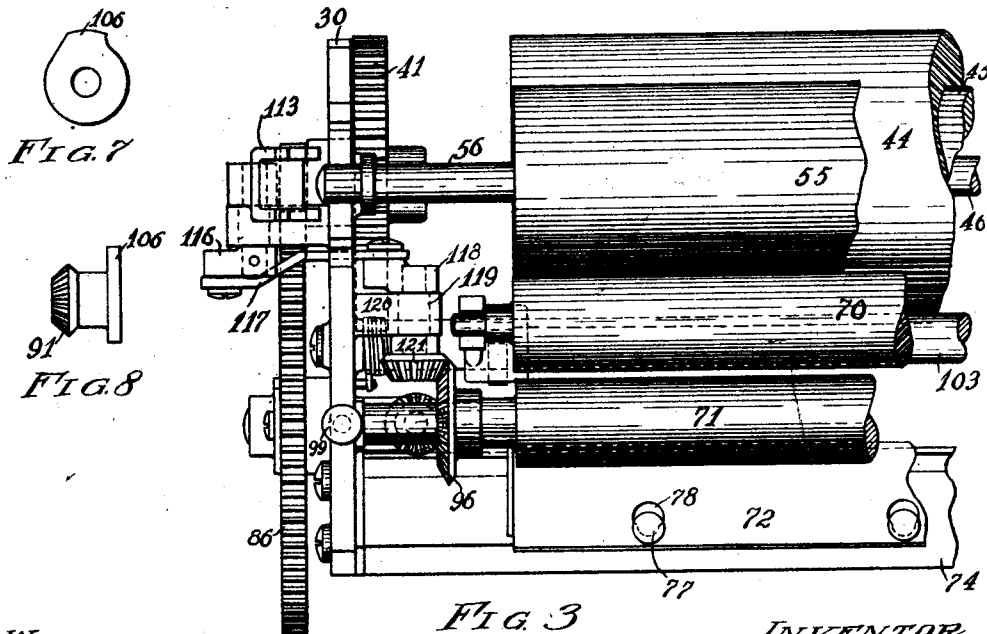


FIG. 3

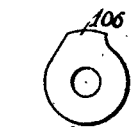


FIG. 7

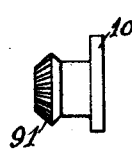


FIG. 8

WITNESSES:

Dorron B. West.
 Arthur S. Remberg.

INVENTOR,

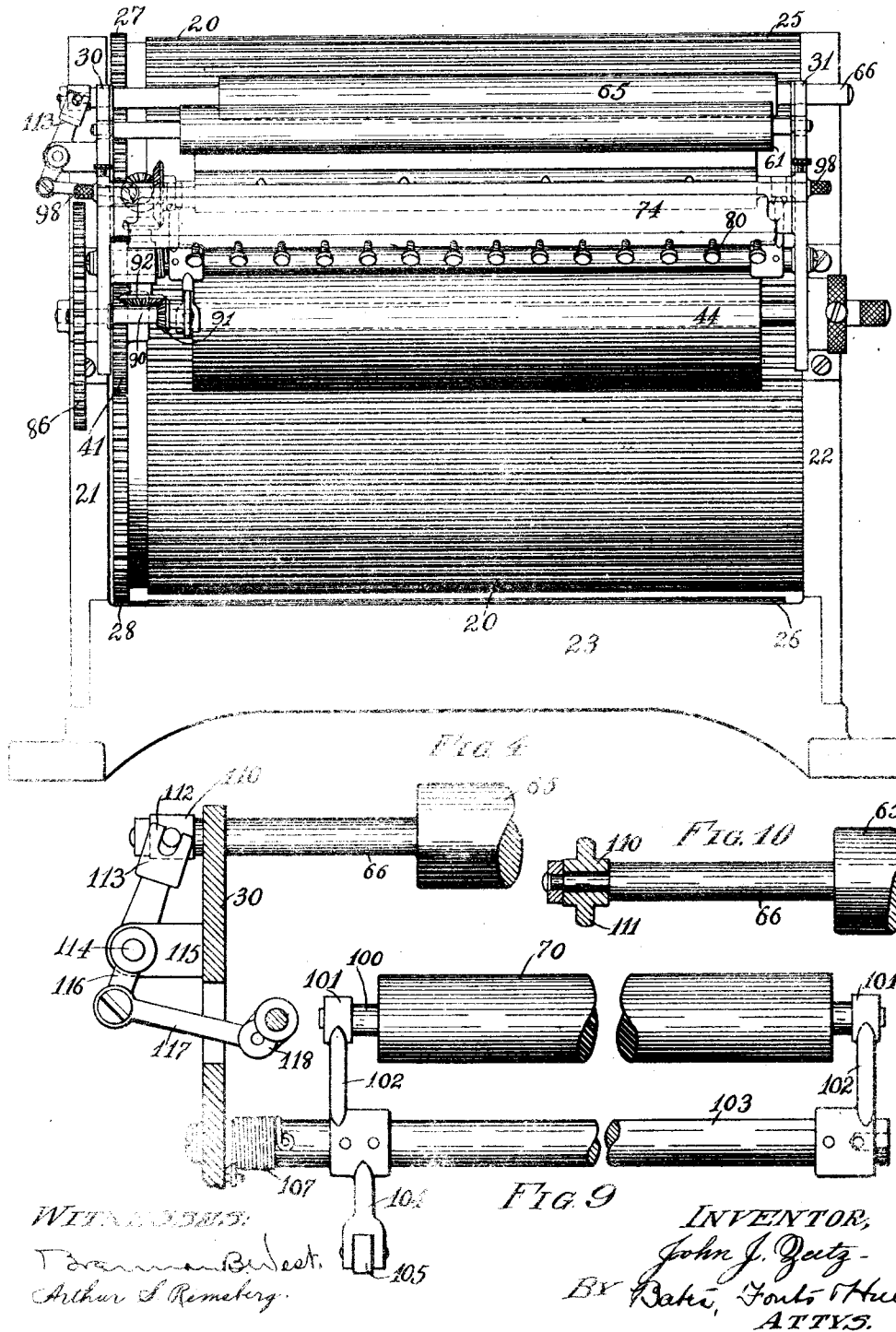
John J. Zeitz.
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 INKING ATTACHMENT FOR PRINTING PRESSES.
 APPLICATION FILED MAR. 19, 1908.

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Patented July 2, 1912.

3 SHEETS-SHEET 3.



UNITED STATES PATENT OFFICE.

JOHN J. ZEITZ, OF CLEVELAND, OHIO, ASSIGNOR TO THE AMERICAN MULTIGRAPH COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

INKING ATTACHMENT FOR PRINTING-PRESSES.

1,031,311.

Specification of Letters Patent.

Patented July 2, 1912.

Application filed March 19, 1908. Serial No. 421,964.

To all whom it may concern:

Be it known that I, JOHN J. ZEITZ, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Inking Attachments for Printing-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide a simple, efficient and easily cleaned inking attachment for printing presses.

The attachment is especially well adapted for small hand-operated or office printing presses. It is shown herein as applied to such a press, wherein there is a rotary printing drum adapted to carry longitudinal rows of individual type grooved on their sides to slide between overhanging rails, a suitable platen cooperating with such drum, and the paper to be printed being fed between them. Such drum and platen are used in the Gammeter multigraph wherein the ink may be supplied by an inked ribbon carried by the printing drum. My mechanism provides an attachment which may be placed on the multigraph, as a substitute for the inking ribbon, wherever direct printing is desired.

The invention comprises the means which I have adopted, rendering the mechanism simple and at the same time very efficient, both in its operation and cleansing.

The mechanism is hereinafter more fully described and its essential characteristics are set out in the claims.

In the drawings, Figure 1 is a side elevation of a rotary printing machine of the multigraph type having my inking attachment applied thereto; Fig. 2 is a vertical section through the driving mechanism of the inking attachment; Fig. 3 is a plan of the driving mechanism of the inking attachment and adjacent portions of some of the rolls, the three uppermost distributing rolls being omitted; Fig. 4 is a rear elevation of the printing drum and inking attachment; Fig. 5 is a longitudinal section taken along the shaft carrying the form roll of the inking attachment; Fig. 6 is a cross section through the ink fountain; Figs. 7 and 8 are details showing the pinion and cam which operate the ductor roll; Fig. 9 is a detached

view in vertical section, illustrating the operation of the ductor roll and the traveling distributor roll; and Fig. 10 is a view of a portion of the traveling distributor roll and its shifting mechanism.

As shown in Figs. 1, 2 and 4, 20 represents a suitable drum mounted between frame end plates 21 and 22 which are connected by a suitable base 23. The drum is secured on a suitable shaft journaled in these end plates and a crank 24 is attached to one end of the shaft for rotating the drum. The drum is shown as having overhanging rails 25 which may carry longitudinal rows of grooved individual type. Beneath the drum is a suitable rotary impression platen 26 (Fig. 4), the drum and platen being geared together by gears 27 on the drum and 28 on the platen. A crank 29, Fig. 1, is adapted to adjust an eccentric bearing for the platen. This much of the construction is usual in the multigraph and will not be further described.

My inking attachment, in the form shown, has been arranged to be secured to the frame members 21 and 22 of the machine illustrated. For this purpose I provide for the inking attachment a pair of end plates 30 and 31 of the form shown in Figs. 1 and 2. These plates have projecting flanges 32 by which they are fastened by screws 33 to the edge of the frame plates 21 and 22 of the printing machine. Mounted in the end plates 30 and 31 of the inking attachment are a pair of bushings 34 and 35. (Fig. 5). These bushings are held in place by set screws 36 and 37 which extend each into an annular groove in the respective bushing. The bushings are provided with eccentric bores. Within the bore of the bushing 34 is mounted the hub 40 of the gear 41, which meshes with the gear 27 on the printing drum, while within the bore of the bushing 35 is mounted a stub shaft 42. Between the plates is a form roll 44 composed of composition on a wood core 45 which is mounted on a shaft 46. This shaft extends at one end into and through the hub of the gear 41 and is pinned to such gear at 48. At its other end the shaft has an axial recess which is occupied by a reduced extension 49 of the stub shaft 42. The stub shaft 42 has a knurled end 50 by which it may be conveniently grasped by the fingers and is

held in place by a set screw 51 mounted on the bushing 35 and screwing into an annular groove 52 in the stub shaft.

It will be seen that the described arrangement allows not only a very accurate adjustment of the form roll to present its periphery properly to the printing surface, but allows an easy removal of the roll. For adjustment, the bushings 34 and 35 are simply turned on their axes, which shifts the axis of the form roll correspondingly, the bushings being then locked in adjusted position by the set screws 36 and 37. To remove the form roll, it is only necessary to turn the set screw 51 out a short distance and draw out the stub shaft 50, which allows the shaft 46 and its attached parts to be shifted to the left sufficiently so that the hub of the gear 41 may clear the bushing 34.

Surmounting the form roll is a metal distributor roll 55, the projecting shaft 56 of which occupies slots 57 in the end plates. Surmounting this metal distributor roll are two composition distributors 60 and 61. These rolls have projecting shafts 62 which occupy slots 63 in the end frame plates. The mounting of these shafts in slots allows them to be removed with great ease. Contacting with each of the composition or distributor rolls 60 and 61 is a traveling distributor roll 65 made of metal and mounted on a shaft 66 which also occupies the slots 57 referred to. This roll rests on the composition rolls and it is arranged to be shifted longitudinally, by mechanism hereinafter described, to properly distribute the ink on the composition rolls.

The ink is carried to the metal distributor roll 55 by a ductor roll 70 made of composition and adapted to be periodically shifted between the distributor roll 55 and the metal fountain roll 71. This fountain roll is suitably journaled (as hereinafter described) and engages at its periphery with the base plate 72 of the fountain. This plate 72 is held in an inclined position on the cross bar 74 which extends between the end plates and is secured to them. The fountain plate is flanged upwardly at its ends, as shown at 75 and upwardly at its outer edge as shown at 76. Just inside of the outer edge it is held by the heads of a number of pins 77 which project upwardly from the bar 74. In normal position, the heads of these pins overhang the openings in the plate which the shank of the pins occupy. These openings, however, have adjacent enlargements 78 (Fig. 3) which allow the plates to be removed over the heads of the pins when the plate is drawn outwardly slightly, as it may easily be by pulling on the curved edge 76. The pointed heads of the pins 77 allow the easy return of the plate to position. The plate is held up to the fountain roll by a number of set screws 80. (Figs. 4 and 6).

These set screws are mounted in the bar 74 and screw upwardly against a steel strip 81 which is surmounted by a rubber strip 82. These strips occupy a groove in the bar. By reason of the elasticity of the rubber strip the edge of the plate 72 may be given the desired contact against the fountain roll. The number of set screws 80 allows the plate to be adjusted accurately according to the form of the printing drum. If it appears from the sample product that any part of the form needs more or less ink, the corresponding set screws 80 are simply turned slightly in or out, as the case may be.

The shaft 97 of the fountain roll is mounted by means of pins 98 which engage axial recesses on the ends of the shaft and extend through the frame members and are held thereto by suitable set screws 99, this arrangement allowing the removal of the fountain roll by drawing out these pins.

In order to rotate the various rolls, as well as to shift the ductor roll and give the longitudinal movement to the traveling distributor roll, I provide the following gearing: The gear 41 on the shaft of the form roll meshes with the gear 27 on the printing drum. Rigid on the hub of the gear 41 is a pinion 85 which meshes with a gear 86 loosely journaled on a boss on the outer side of the frame plate 30. On this gear is a pawl 87 pressed by a spring 88 and adapted to engage a notch in a ratchet disk 89 rigid on a short shaft 90 journaled in the frame plate 30 and in the boss on which the gear 86 is mounted. On the inner end of this shaft 90 is a bevel pinion 91 which meshes with a bevel pinion 92 on the lower end of a short vertical shaft 93 which is mounted in a bracket 94 secured to the inner side of the frame plate 30. On the upper end of this shaft 93 is a bevel pinion 95 which meshes with a bevel pinion 96 rigid on the shaft 97 of the fountain roll. Thus the fountain roll is continuously driven when the printing drum is revolved in the proper direction (left hand rotation in Fig. 1) but owing to the ratchet 87, 88 receives no rotation should the drum be driven in the opposite direction.

As stated, the form roll receives its rotation from the printing drum by reason of the gear 40 meshing with the gear 27 of the printing drum. The distributor roll 55 receives its rotation by friction with the form roll, and this distributor roll rotates by friction the distributor rolls 60 and 61 which in turn by friction rotate the traveling distributor 65.

The ductor roll 70 has its shaft 100 mounted in forks 101 in the upper ends of arms 102 rigidly mounted on the rock shaft 103. Depending from this rock shaft is an arm 104 (which may be made integral of the hub of the arm 102). This arm 104 carries

a roller 105 which stands in the path of a cam 106 formed on the hub of the pinion 91. A coiled spring 107, surrounding the shaft 103 and secured to it and the adjacent frame member, tends to keep the ductor roll 70 in engagement with the distributor 55 and keeps the roller 105 close to the concentric periphery of the cam 106. When the projecting portion of this cam comes into cooperation with the roll 105, the shaft 103 is rocked and the ductor roll is moved into engagement with the fountain roll, remaining there for a sufficient time to obtain a supply of ink. Then as the ductor roll returns to the distributor 55 and rotates in contact therewith, this ink is transferred to this distributor roll.

To give the desired longitudinal movement to the traveling distributor 65, I journal on the end of its shaft 66, a block 110 having trunnions 111, and these trunnions occupy forks 112 in the bifurcated upper end of the arm 113 which is secured at its lower end to a short rock shaft 114 journaled in an ear 115 projecting from the frame plate 30. Projecting from the other end of this rock shaft is the rock arm 116 which is connected by a link 117 with a small crank 118 carried on the inner end of a short shaft 119. This shaft is journaled in an ear 120 on the inner side of the frame plate, and carries at its other end a pinion 121 which meshes with the gear 96 on the shaft of the fountain roll. With this construction it results that a continuous rotation of the gear 96 on the fountain roll reciprocates the traveling distributor backward or forward slowly and continuously.

It will be noticed that should the printing drum be rotated backward, no motion is given either to the fountain roll or to the ductor roll, nor is there any longitudinal shifting given to the traveling distributor. The form roll, distributors, and ductor roll would therefore simply rotate idly.

One of the advantages of my mechanism is the ease with which it may be taken apart for cleaning. The distributor roll 65 may be simply lifted out, then the two composition distributors 60 and 61 can be lifted out, then the metal distributor 55 and the ductor roll. All these parts simply occupy slots or forks open at their upper ends. The drawing out of the stub shafts of the fountain roll allows this roll to be then conveniently removed, and the base plate of the fountain may also be easily taken out. Then the form roll may be removed by the withdrawal of its stub shaft. This ease of separation is an important point, particularly when it is remembered that this mechanism is primarily designed for use on an office printing press, where the operator is not a skilled pressman.

Another feature of my invention is its

compactness and its self-contained character. All the parts are mounted on the two end frame plates 30 and 31 and these plates are rigidly held by the bar 74 which supports the fountain. It is accordingly possible, by removing the screws 32 which hold the end plates to the frame of the printing press, to entirely disconnect the inking attachment without disengaging its parts from each other.

I claim:

1. In an inking attachment, the combination of a form roll, a rotatable member geared with the form roll, a ratchet pawl carried by said member, a ratchet mounted concentrically with said member and adapted to be engaged by said pawl, a bevel pinion rigid with said ratchet, a fountain roll, and gearing connecting the same with said bevel pinion.

2. In an inking attachment, the combination of a form roll, a rotatable member geared therewith, a ratchet pawl driven by said rotatable member, a ratchet adapted to be engaged by said pawl, a bevel pinion and a cam, both rigid with said ratchet, a fountain roll, gearing connecting the same with said bevel pinion, a ductor roll, and an operating lever therefor cooperating with said cam.

3. The combination with a rotary printing drum having a gear, of a form roll having a gear meshing therewith, a ratchet drive geared with the form roll, and fountain and ductor rolls driven through said ratchet drive.

4. In an inking attachment, the combination of a form roll, a gear rigid therewith, a pinion rigid with said gear, a second gear meshing with said pinion, a ratchet pawl carried by said second gear, a ratchet mounted concentrically with the second gear and adapted to be engaged by said pawl, a bevel pinion rigid with said ratchet, a fountain roll, and gearing connecting the same with said bevel pinion.

5. In an inking attachment, the combination of a form roll, a gear rigid therewith, a pinion rigid with said gear, a second gear meshing with said pinion, a ratchet pawl carried by said second gear, a ratchet mounted concentrically with the second gear and adapted to be engaged by said pawl, a bevel pinion and a cam both rigid with said ratchet, a fountain roll, gearing connecting the same with said bevel pinion, a ductor roll and an operating lever therefor cooperating with said cam.

6. In an inking attachment, the combination of a form roll, a gear rigid therewith, a pinion rigid with said gear, a second gear meshing with said pinion, a ratchet pawl carried by said second gear, a ratchet mounted concentrically with the second gear and adapted to be engaged by said pawl, a

bevel pinion and a cam both rigid with said ratchet, a fountain roll, gearing connecting the same with said bevel pinion; a ductor roll, an operating lever therefor cooperating with said cam, a distributor roll cooperating with the form roll and with the ductor roll, other distributing rolls cooperating with the distributing roll first mentioned, a traveling distributor roll contacting with said other distributing rolls, and mechanism for reciprocating said traveling distributor roll, said mechanism being geared with said bevel pinion.

7. The combination, with a rotary printing drum having a gear, of a form roll having a gear meshing therewith, a fountain roll, a ductor roll, and a driving connection for the fountain roll from said gear, which connection drives in one direction while allowing idle rotations of the printing drum in the opposite direction.

8. The combination with a rotary printing drum and the frame of the printing machine, of a separable inking attachment adapted to be carried by said frame and including a form roll engaging the printing surface of the printing drum, a distributing roll surmounting the form roll, a ductor roll behind the distributing roll, a fountain roll behind the ductor roll, an idler roll above the distributor roll in contact therewith, a longitudinally shiftable distributing roll engaging the idler roll, a gear on the printing drum, and mechanism engaging therewith for positively rotating the form roll and the fountain roll and for shifting the ductor roll and the traveling distributor roll.

9. The combination with a rotary printing drum and end frame plates of a separable inking attachment therefor having frame plates adapted to be secured to the frame plates of the printing machine at one side of the drum, said inking attachment, including a form roll adapted to contact with the printing surface of the drum, a distributor roll surmounting the form roll, a ductor roll behind the distributing roll, a fountain roll behind the ductor roll, and driving gearing for the fountain roll located below the fountain roll and behind the form roll, a gear on the form roll mesh-

ing with a gear on the printing drum, and a gear connecting the form roll with said driving gearing.

10. The combination with a rotary printing drum and end frame plates, of an inking attachment having frame plates adapted to be secured to the frame plates of the printing machine, said inking attachment including a form roll engaging the printing surface of the printing drum, a distributing roll surmounting the form roll, a ductor roll behind the distributor roll, a fountain roll behind the ductor roll, two smaller distributing rolls above the first mentioned distributing roll and contacting with the same, a longitudinally shiftable distributing roll engaging said two smaller rolls, a gear on the printing drum, and mechanism engaging therewith for positively rotating the form roll and the fountain roll, said mechanism also shifting the ductor roll and the traveling distributor.

11. The combination, of a rotary printing drum having a gear, a form roll geared therewith, a fountain roll, a shoulder rotatable therewith, a driving mechanism geared with the form roll, and a member carried thereby adapted to engage said shoulder on one side to shove the same around while allowing independent reverse movement of the driving mechanism.

12. The combination of a rotary printing drum, of a form roll geared therewith, a distributor roll cooperating with the form roll, a ductor roll behind the distributor roll, a fountain roll behind the ductor roll, gearing between the form roll and the fountain roll, a cam operated by said gearing, a lever operated by said cam for shifting the ductor roll, an idler roll cooperating with the distributor roll, a longitudinally movable distributor roll cooperating with the idler roll, and mechanism geared with the gearing mentioned for longitudinally moving said last mentioned distributor roll.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

JOHN J. ZEITZ.

Witnesses:

ALBERT H. BATES,
W. DUNLAP.