

H. C. GAMMETER.
INKING ATTACHMENT FOR PRINTING MACHINES.
APPLICATION FILED MAR. 1, 1909.

1,047,626.

Patented Dec. 17, 1912.
6 SHEETS—SHEET 1.

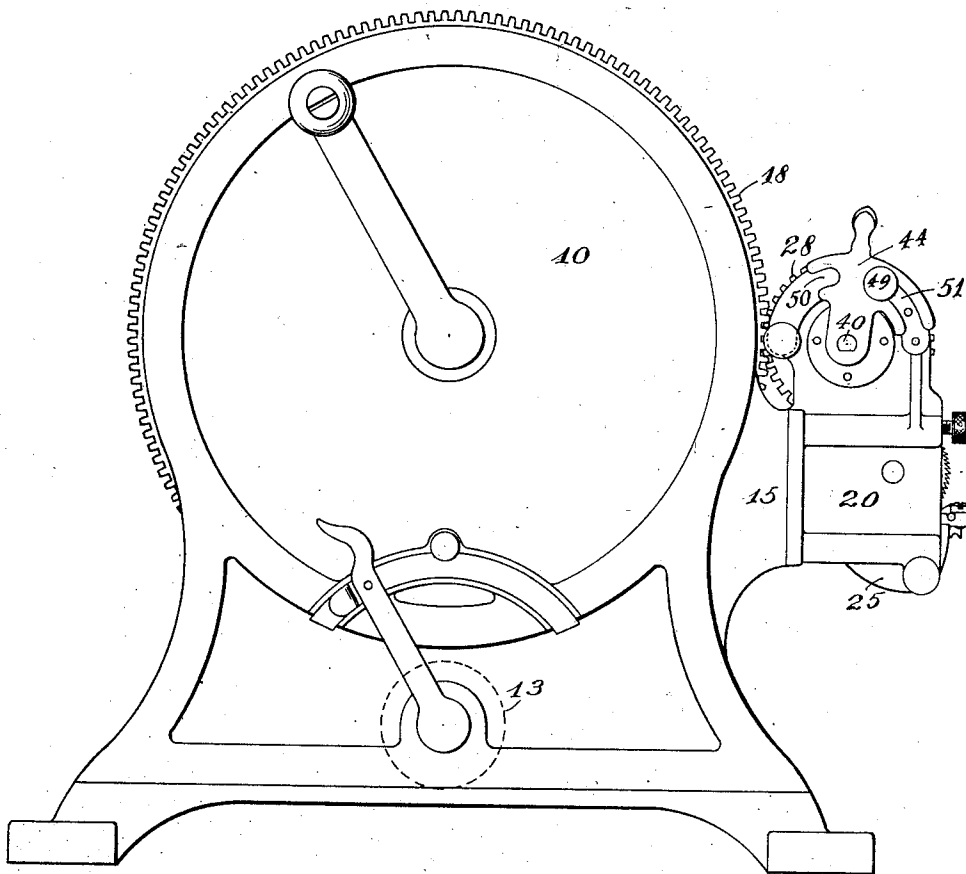


FIG. 1

WITNESSES:

Forman & West.
Nathan F. Fetter.

INVENTOR,

Harry C. Gammeter.

By R. H. G. Jones, Jr.
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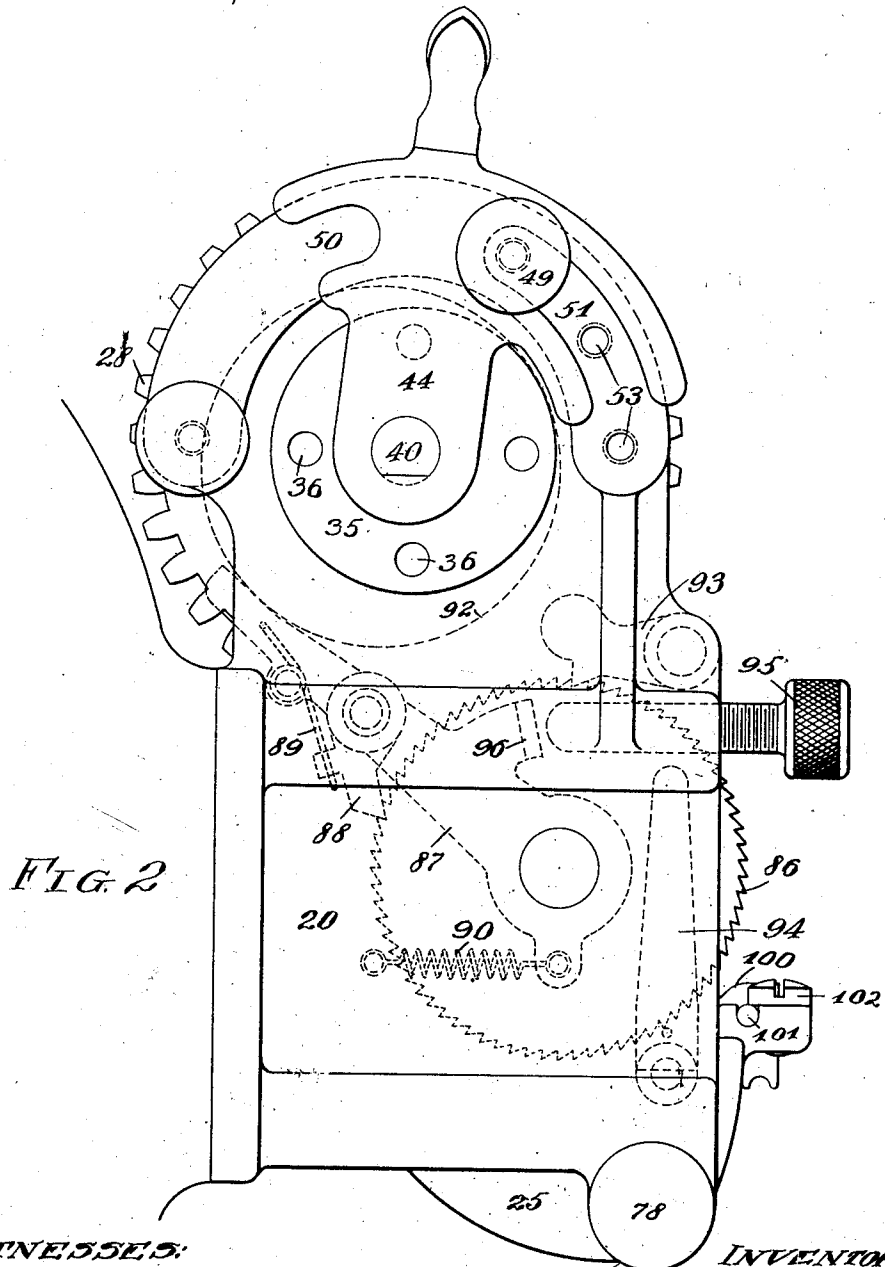


FIG. 2

WITNESSES:
 Thomas A. West.
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 6 SHEETS—SHEET 3.

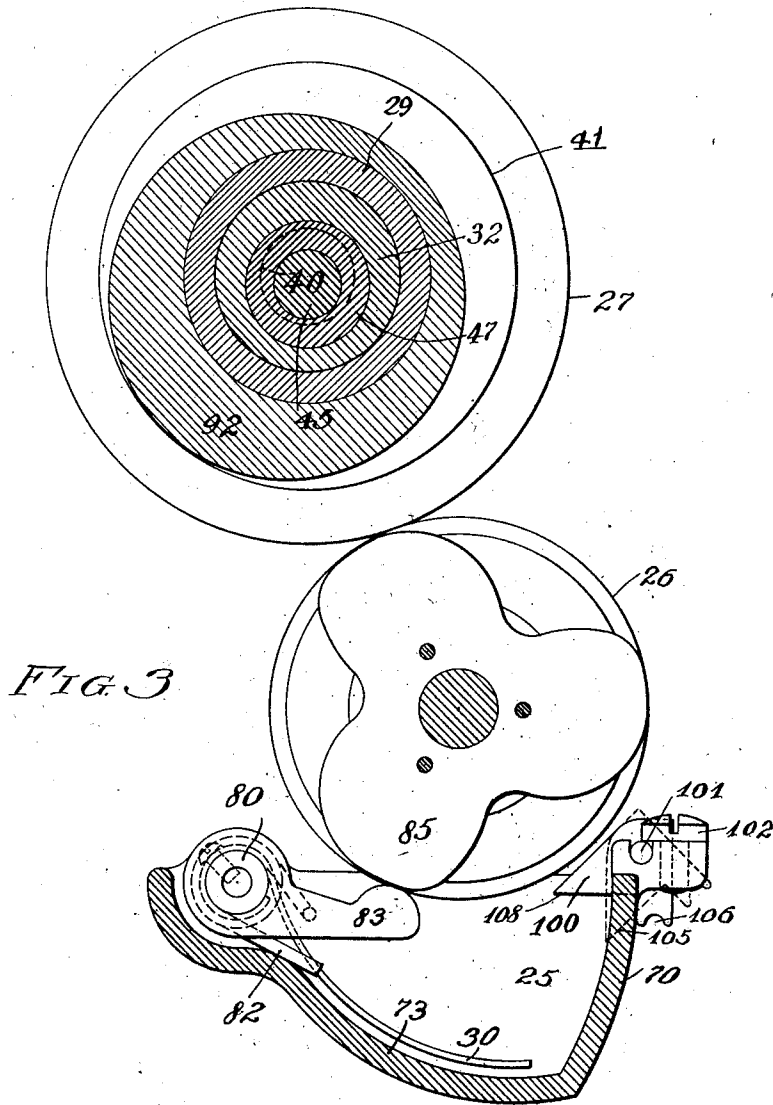


FIG. 3

WITNESSES:
 Foreman B. West,
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INVENTOR:
 Harry C. Gammeter,
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6 SHEETS—SHEET 4.

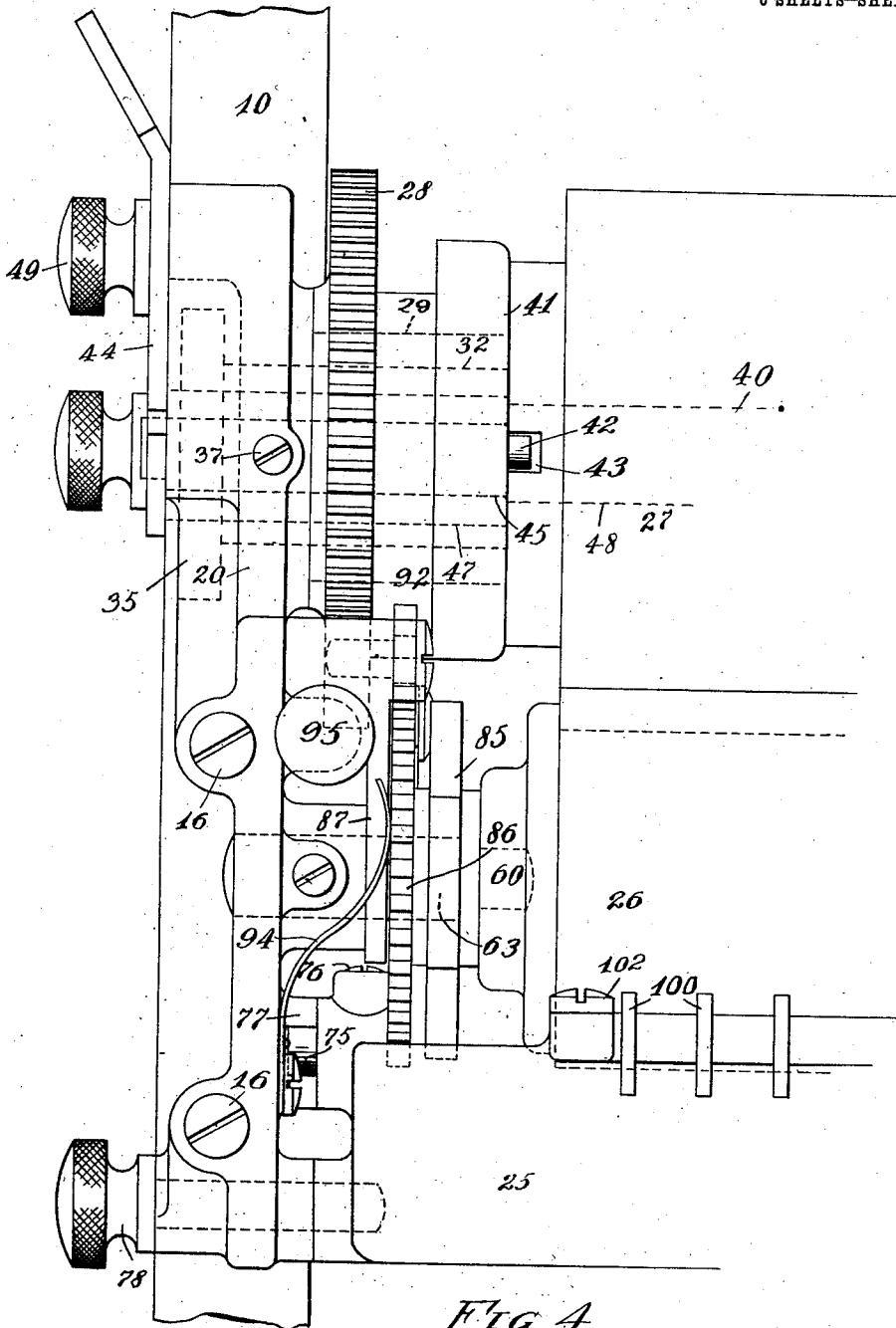


FIG. 4

WITNESSES:

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Nathan F. Fretter

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Harry C. Gammeter

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6 SHEETS-SHEET 5.

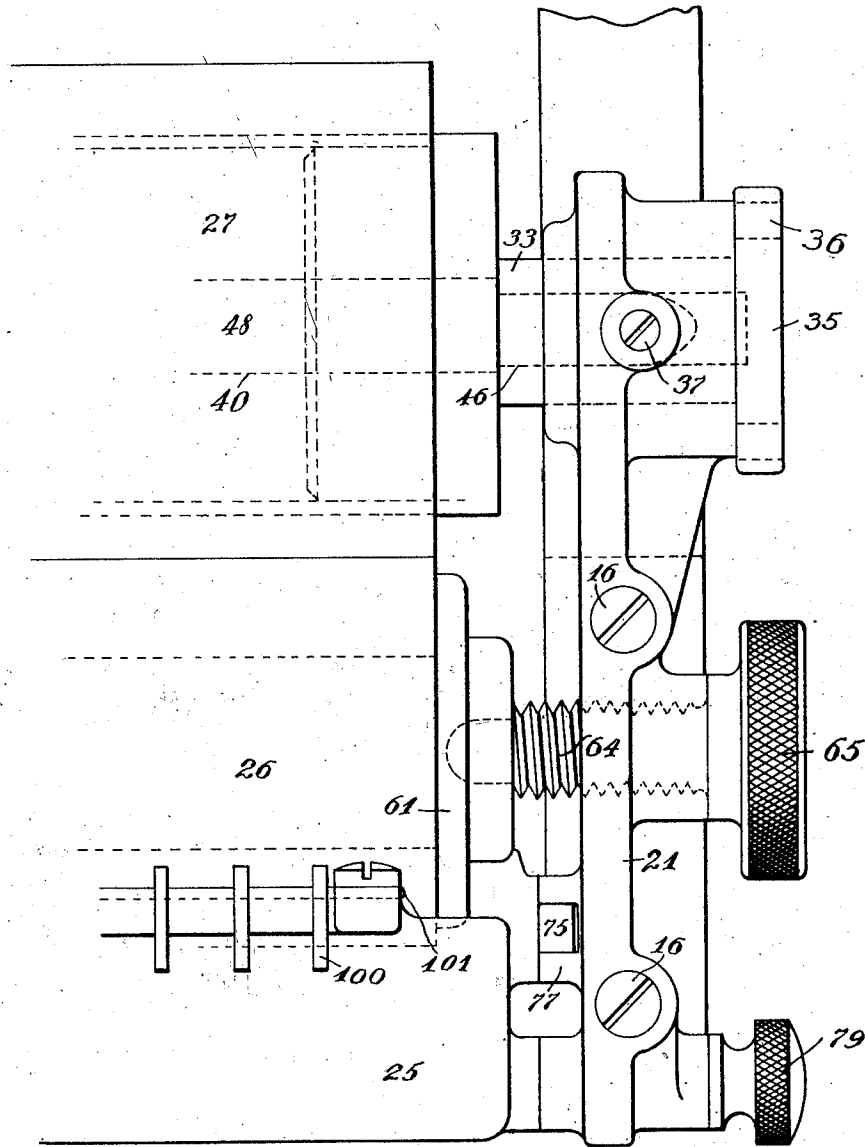


FIG. 5

WITNESSES:

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 Nathan F. Fretter.

INVENTOR,

Harry C. Gammeter.

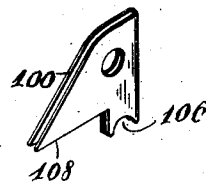
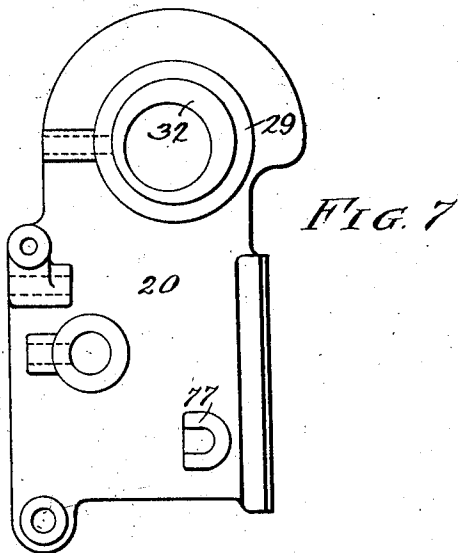
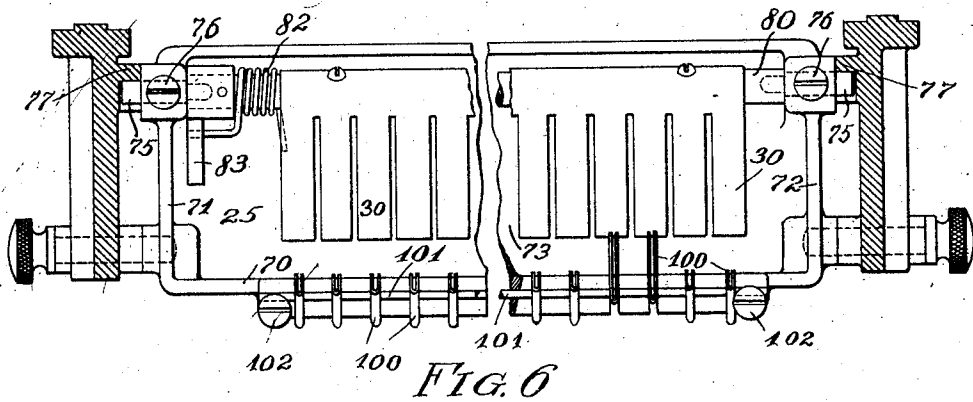
BY RALPH HUNT HULL
 ATTYS.

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6 SHEETS—SHEET 6.



WITNESSES:
 Foreman West.
 Nathan F. Fretter.

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UNITED STATES PATENT OFFICE.

HARRY C. GAMMETER, OF BRATENAHL, OHIO, ASSIGNOR TO THE AMERICAN MULTIGRAPH COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

INKING ATTACHMENT FOR PRINTING-MACHINES.

1,047,626.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed March 1, 1909. Serial No. 480,508.

To all whom it may concern:

Be it known that I, HARRY C. GAMMETER, a citizen of the United States, residing at Bratenahl, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Inking Attachments for Printing-Machines, 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 very simple and efficient inking mechanism for printing machines, particularly small office printing machines having a rotary printing drum, of the type known as the multigraph, though my attachment may be applied to other machines.

My inking attachment comprises an inking fountain, an absorbent roll, means for periodically and controlledly supplying ink to the absorbent roll, and a distributing roll to convey the ink from the absorbent roll to the type. The absorbent roll may be very effectively made of felt, the ink carried to it by fingers periodically moved against the felt from the inking fountain, while the distributor roll may be of rubber.

The invention includes the combination of the absorbent roll and the distributing roll with the ink supply for the absorbent roll.

It includes also the particular materials mentioned, though it is not limited thereto.

It includes further the mechanism for supplying the ink to the absorbent roll, means for operating the various parts for adjusting them, for regulating the ink supply to the absorbent roll, and for throwing out of action the distributor roll, and other features hereinafter explained.

The invention may accordingly be best summarized as comprising the combinations of coöperating parts illustrated herein and set out in the claims.

In the drawings, Figure 1 is an end view of a rotary printing machine or multigraph equipped with my inking attachment. The remaining figures are on an enlarged scale. Fig. 2 is an end elevation of the inking attachment. Fig. 3 is a vertical section of the same parallel with Fig. 2; Fig. 4 is a rear elevation of the left hand portion of the ink-

ing attachment. Fig. 5 is a rear elevation of the right hand portion. The two latter figures, with the intermediate broken-out part, constitute a complete rear elevation. Fig. 6 is a horizontal section taken just above the ink trough. The remaining figures are details.

As shown in the drawings, 10 represents the end plate of a rotary printing machine of the multigraph type. Beyond this end plate is a rotary drum carrying longitudinal rows of type. This type coöperates with a suitable platen mounted beneath the drum and parallel with it, indicated by the dotted line 13. The printing drum is provided with a gearing 18 which meshes with a gear below it, driving the platen. On the rear edge of the end frame 10 is a flattened boss 15. On the rear edge of the corresponding frame at the other end of the drum is a similar boss, and to these two bosses is secured my inking attachment, which is accordingly removable as a whole, the securement being effected by means of a pair of screws 16 at each end.

The frame of the inking attachment comprises two end members 20 and 21 which are secured to the two frame plates of the printing machine respectively. Between these end members are mounted an ink-carrying trough 25, an absorbent roll 26 above the trough, and a distributing roll 27 above the absorbent roll, the distributing roll being in position to engage both the absorbent roll and the type on the printing drum. Within the trough are a series of elastic fingers 30 projecting from a rock shaft which is periodically rocked to lift the fingers out of the trough and thereby carry a small quantity of ink to the felt roller. A suitable gear 28, mounted on a sleeve 29 projecting from the plate 20, and connected with the main gear 18 on the printing drum rotates the distributing roll of the inking attachment. A ratchet mechanism operated by this rotates a cam which gives a periodic actuation to the fingers. The absorbent roll receives its rotation from contact with the distributing roll.

I will now describe the support and adjustment of the distributing roll.

Mounted in the frame members 20 and 21 are a pair of bushings 32 and 33 which have eccentric bores. These bushings have flanged heads 35 with holes 36 for the application of a spanner wrench, so that they may be conveniently turned and there held in adjusted position by set screws 37. Occupying these bushings and accurately adjusted in position by them is the shaft 40 on which the distributing roll 27 turns. This shaft has rigidly secured to its end an operating lever 44 of the form shown in Figs. 2 and 4. The body of this shaft, where it passes through the roller 27, is eccentric to the portion journaled within the bushings 32 and 33. This eccentricity is conveniently provided by turning down the end portions of the shaft eccentrically as indicated by 45 and 46, the reduced portion 45 being surrounded by a sleeve 47 of a constant thickness to enlarge the eccentric bearing at that end at all points beyond the intermediate portion 48 of the shaft. With this construction, the shaft may be drawn as a whole longitudinally outward through the bushing 32, thus entirely freeing the distributing roll 27 and allowing it to be removed for cleaning. By securing the shaft rigidly to the operating lever, a convenient handle is provided for the removing of the shaft. The thumb nut 49 is adapted to clamp this lever in place.

The construction described not only provides for mounting the distributing roll so that it may be removed whenever desired, but provides for its accurate adjustment and for throwing it into and out of position. The bushings 32 and 33 are first adjusted independently and set so that the roll is parallel with the surface of the printing drum. The lever 44 is then adjusted to cause the roll to bear as desired against the printing drum. When desired, the lever 44 may be thrown backward to carry the distributing roll entirely out of contact with the printing drum. The distributing roll is driven by a pin 42 on head 41 (rigid with the gear 28) which occupies a slot 43 in the end of the roll. This connection provides freedom for the eccentric adjustment, and also enables the removal of the roll when the shaft is withdrawn. The primary adjustment of the bushings 32 and 33 is such and the eccentrics extend in such direction, that the proper bearing of the distributing roll against the absorbent roll is obtained, while movement of the lever changes the bearing of the distributing roll against the drum without materially varying its presentation to the absorbent roll. To enable this operation, a considerable range of movement of the lever 44 is desirable, and this I accomplish by making openings or slots 50 and 51 on opposite sides of it which may be occu-

pied by the shank of the thumb nut 49, this nut screwing into one of several holes 53 in the end member 20.

As has been stated, the roller 27 is preferably of soft rubber, or has a soft rubber coating for the purpose of distributing ink from the supply roll 26 to the type. The roll 26 is absorbent, being made of felt on a suitable core, and carries the supply from which the distributing roller receives its ink. This supply roll has metal ends 60 and 61 which have center bores whereby the roller is journaled. The bore in the end 60 rests on the projecting end of a stationary stud 63. The bore in the member 61 is occupied by the inner end of the screw 64. This screw is normally turned in by a knurled head 65 to its extreme limit and is stationary. The turning out of this screw by means of this head furnishes very simple means for allowing the removal of the felt roller. When the screw is turned outwardly sufficiently, the roller may be moved in that direction to clear the stud 63. In operation it is to be understood that this felt roller maintains contact with the elastic roller and has its under surface a short distance above the ink trough or fountain 25, and that the ink is periodically lifted in small amounts at various points from the trough to the felt roller.

The inking trough 25 is removable as a whole. It is preferably a casting with a front 70, ends 71 and 72, and a bottom 73, which curves upwardly toward the rear, and forms also the back of the trough. Mounted in the ends 71 and 72 are studs 75 which project in each direction from these ends and are held in place by suitable set screws 76. The outwardly projecting ends of these studs form the means for supporting the rear portion of the trough, these studs occupying forwardly facing slots in U-shaped lugs 77 on the inner faces of the frame members 20 and 21. The trough is supported near its forward end by screw studs 78 and 79 which screw through the frame members into the trough near its front end. These screw studs may be conveniently turned outwardly by their knurled heads, which frees the trough so that it may be drawn forwardly out of its rear support and removed entirely. The same studs 75 which, being carried by the trough, provide its rear support, provide also the means for holding the rock shaft, which carries the fingers 30. This rock shaft is designated 80. It has bores at its opposite ends into which the ends of the studs 75 project. Accordingly, this rock shaft with its fingers is removable from the inking attachment with the trough. It is also conveniently removable from the trough by loosening the set screws 76 and drawing the studs outwardly.

The fingers 30 are preferably of sheet metal, being made in one piece or a number of parts as desired, and are mounted at the rear on the rock shaft 80.

Surrounding the rock shaft 80 is a spring 82 tending to rock the shaft in a direction to elevate the fingers. Secured to the shaft is a lever 83, one end of the spring being secured to this lever and the other end extending loosely and being adapted to lie against the base of the trough 25. The lever 83 bears against the periphery of a cam 85, which is loosely mounted on a stationary stud 63. Mounted on this stud and rigid with the cam is the ratchet wheel 86. Freely mounted on the stud also is the lever 87 carrying a pawl 88, which, under the influence of a spring 89, is adapted to engage with the ratchet teeth. A spring 90 tends to keep the lever elevated, and bearing against a cam 92, rigid with the main gear 28 of the inking attachment. The result of this mechanism is that as the main gear revolves, the cam 92, which may be simply an eccentric, forces the lever gradually downwardly to feed the ratchet,—the spring returning the lever when the cam allows it. Accordingly, with successive rotations of the distributing roller, the ratchet is fed step by step. This feeds the cam 85 correspondingly, which freeing the lever 83, allows the spring 82 to rock the fingers upwardly through the ink against the supply roller. Ink is thus periodically applied in small quantities to the supply roll, without that roll being in contact with the ink in the fountain. The fingers 30 are close enough together so that the ink supplied by them to the elastic roll is absorbed by the latter along a continuous surface. A friction spring 94 secured to the member 20 and bearing against the side of the ratchet 86 prevents the fingers 30 being inadvertently elevated by the spring 82 when the lever 83 comes onto the decreasing face of the cam 85. The amount of ink which the supply roll receives may be varied by varying the frequency with which the fingers rise, and this is controlled by a stop screw 95 mounted in the frame and abutted by a lip 96 on the lever 87. This stop screw is adjusted by its knurled head and limits the movement of the lever, allowing it to feed the ratchet one or more teeth, as desired, thereby conveying the right amount of ink to the roller. A detent pawl 93 prevents backward rotation of the ratchet.

To enable ink to be supplied to the felt roller in larger quantity in certain places than others to accommodate the ink to the matter on the printing drum, I provide a series of stops adapted to be set to throw out of action any of the fingers desired. These stops consist of spring clips 100 of the form shown in perspective in Fig. 8, and

consist of sheet metal doubled toward itself. The clips are mounted on a rod 101, which is carried in ears on the trough and clamped by screws 102. The clips occupy notches in the front edge of the trough and overhang such edge rearwardly, and may have their rear ends standing above the front ends of the fingers. This is the position of the clips shown in Fig. 3, and any clip occupying such position would engage and stop the finger beneath it, preventing it engaging the felt roller. The clips are normally turned into a diagonal position so that their rear face is parallel with the rear face of the trough and are thus out of cooperation with the fingers,—the notches which the clips occupy having their bottoms inclining downwardly, as at 105, to allow this movement. The lower ends of the clips preferably have notches 106 whereby they may be engaged by the operator's finger and easily turned on their supporting rod to shift them into this idle position. In such position, they are held by their own elasticity, engaging the walls of the notch in the trough. When any particular portion of the printing surface is receiving too much ink, one or more fingers at the corresponding position of the trough have their outer ends swung downwardly into the position shown in Fig. 3 to cause the stops to overhang the fingers. Then when the fingers thereafter rise, the particular finger beneath the active stop is engaged and prevented from carrying ink to the roller,—the depending end 108 of the stop forming an abutment and preventing the upward movement of the finger. The fingers are elastic enough so that the engagement of any of them by the stops do not interfere with the turning of the rock shaft, and the lifting of the unengaged fingers against the absorbent roll.

It will be seen that by this mechanism, I have provided a self contained inking attachment which is adapted to be attached to a multigraph or rotary printing machine, or removed at will therefrom, and that the individual parts of the inking attachment are very conveniently removable for purposes of cleaning, without removing the attachment as a whole from the multigraph. When in use, the combination of the felt and rubber rollers distributes the ink very effectively to the type. The adjustment of the distributing roll with reference to the type is very simple and enables the right amount of ink to be given the type for the desired impression, while the distributing roll is caused to have the proper bearing on the supply roll. Furthermore, the ink conveyed from the fountain to the supply roll is very conveniently regulated, not only as a whole, but in individual portions, according to the matter being printed. Taken as

a whole, the construction is very simple and effective.

Having thus described my invention, what I claim is:

1. In an inking attachment, the combination of an inking roll, an absorbent roll, an inking fountain for the absorbent roll, automatically actuated mechanism movable from the fountain into contact with the absorbent roll for transferring ink from the fountain to the absorbent roll, and means for varying the amount transferred.

2. In an inking attachment, the combination of a distributing roll, an absorbent supply roll, an inking fountain, and periodically actuated fingers adapted to be immersed in the fountain and move therefrom into contact with the absorbent roll to carry ink from the fountain to the supply roll.

3. In an inking attachment, the combination of a roll, an inking fountain, periodically actuated fingers adapted to carry ink from the fountain to the roll, and means for controlling the action of particular fingers.

4. In an inking attachment, the combination of a distributing roll, a supply roll, an inking fountain, periodically actuated fingers adapted to carry ink from the fountain to the supply roll, and means for throwing out of action particular fingers.

5. In an inking attachment, the combination, with an absorbent roll, of mechanism for periodically supplying ink thereto and means for varying the points of application of such ink to the absorbent roll.

6. The combination with a printing machine, of a distributing roll, means for continuously rotating it, an absorbent supply roll in contact therewith, an inking fountain beneath the supply roll, and means movable upwardly in the fountain to lift ink therefrom to the under side of the supply roll.

7. In an inking attachment, the combination of a supply roll, an inking fountain, fingers movable from the fountain to the roll, and adjustable stops for controlling individual fingers.

8. In an inking attachment, the combination of a supply roll, an inking fountain, fingers movable from the fountain to the roll, and adjustable stops for engaging individual fingers to hold them from engaging the roll.

9. In an inking attachment, the combination of a supply roll, an inking fountain, fingers movable from the fountain to the roll, a member having a series of notches, and adjustable stops for engaging individual fingers to hold them from engaging the roll, said stops comprising spring members occupying individual notches in said member.

10. In an inking attachment, the combination of a supply roll, an inking fountain, fingers movable from the fountain to the

roll, and adjustable stops for engaging individual fingers to hold them from engaging the roll, said stops comprising members pivotally mounted on a rod.

11. In an inking attachment, the combination of a trough, a rock shaft extending along the same and having a series of projecting elastic fingers adapted to occupy the trough, an absorbent roll journaled above the trough, mechanism for periodically rocking the shaft to lift the fingers from the ink in the trough against the roll, and means for controlling individual fingers to vary the amount of ink carried to the roll.

12. In an inking attachment, the combination of a trough, a rock shaft extending along the same and having a series of projecting elastic fingers adapted to occupy the trough, an absorbent roll journaled above the trough, mechanism for periodically rocking the shaft to lift the fingers from the ink in the trough against the roll, and a series of stops adapted to engage individual fingers to prevent their contacting with the roll.

13. The combination with a rotary printing drum, of a distributing roll, means for continuously rotating it concurrently with the rotation of the drum, an absorbent supply roll, an inking fountain beneath the supply roll, and non-absorbent means movable upwardly in the fountain to lift ink therefrom to the under side of the supply roll.

14. The combination of a rotary printing drum, a rotatable distributing roll geared therewith, a supply roll cooperating with the distributing roll, a trough for carrying ink, a rock shaft having approximately horizontal fingers occupying said trough, and a cam for periodically moving said fingers upwardly from the trough to a position against the supply roll, whereby the fingers may bodily lift a film of liquid ink to the supply roll.

15. In an inking attachment, the combination of a supply roll, an inking fountain, fingers movable from the fountain to the roll, a cam for causing such movement, and means for controlling the individual fingers.

16. In an inking attachment, the combination of a supply roll, an inking fountain, fingers adapted to carry ink from the fountain to the supply roll, a cam and ratchet for periodically actuating said fingers, and means for regulating the feed of the ratchet.

17. In an inking attachment, the combination of a distributing roll, a supply roll, an inking fountain, fingers adapted to carry ink from the fountain to the supply roll, a cam, ratchet and pawl for operating said fingers, and means for throwing out of action particular fingers.

18. The combination with a rotary printer having vertical frame plates, of an inking attachment having end frames adapted to

be secured to said frame plates, a trough removably mounted on said end frames, a rock shaft extending along the same and having a series of projecting fingers adapted to occupy the trough, an absorbent roll journaled above the trough, mechanism for periodically rocking the shaft to lift the fingers from the ink in the trough against said roll,

and a distributing roll to convey ink from the absorbent roll.

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

HARRY C. GAMMETER.

Witnesses:

ALBERT H. BATES,
CURT B. MUELLER.

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