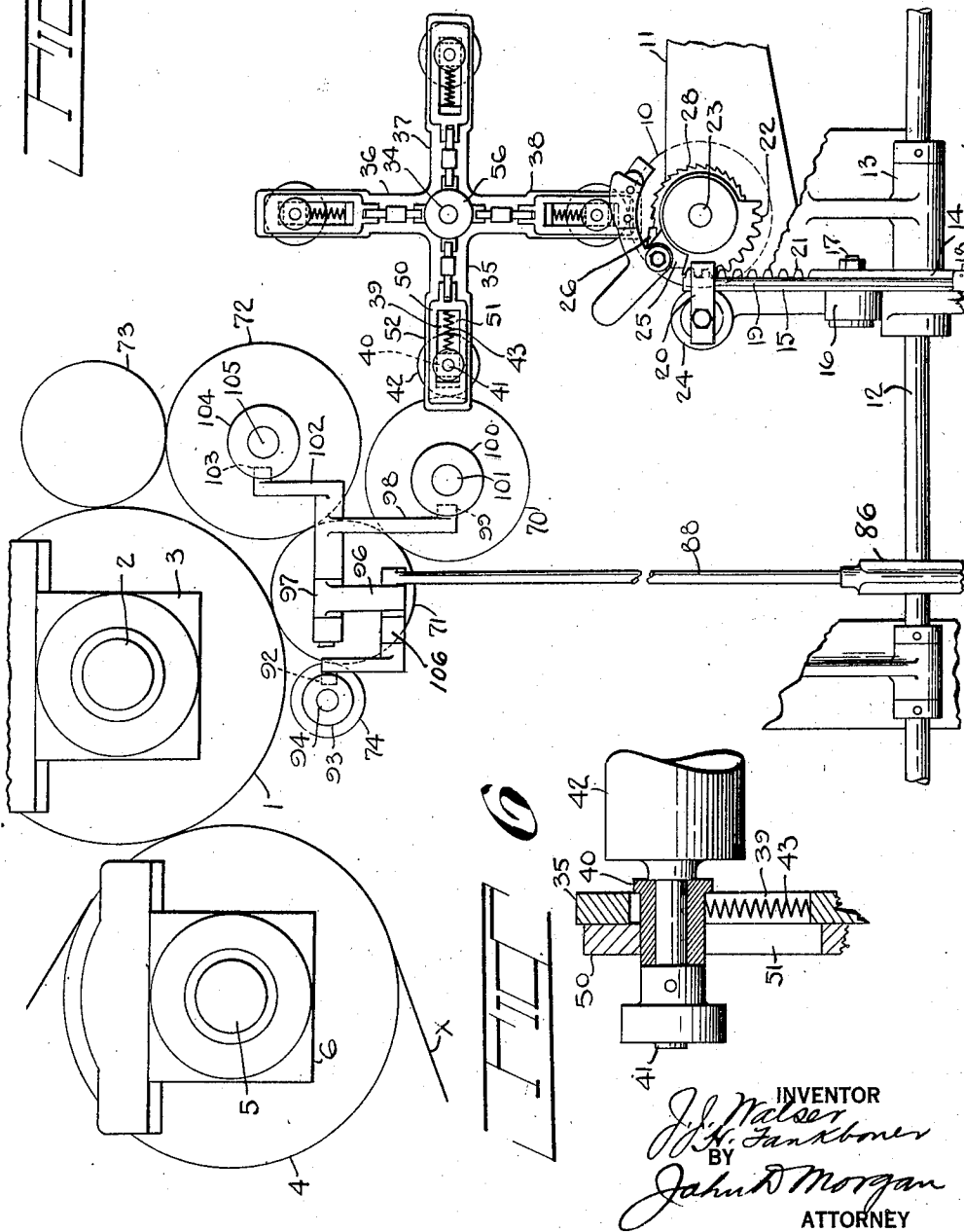


INKING MECHANISM.

1,376,983.

2 SHEETS—SHEET 1.

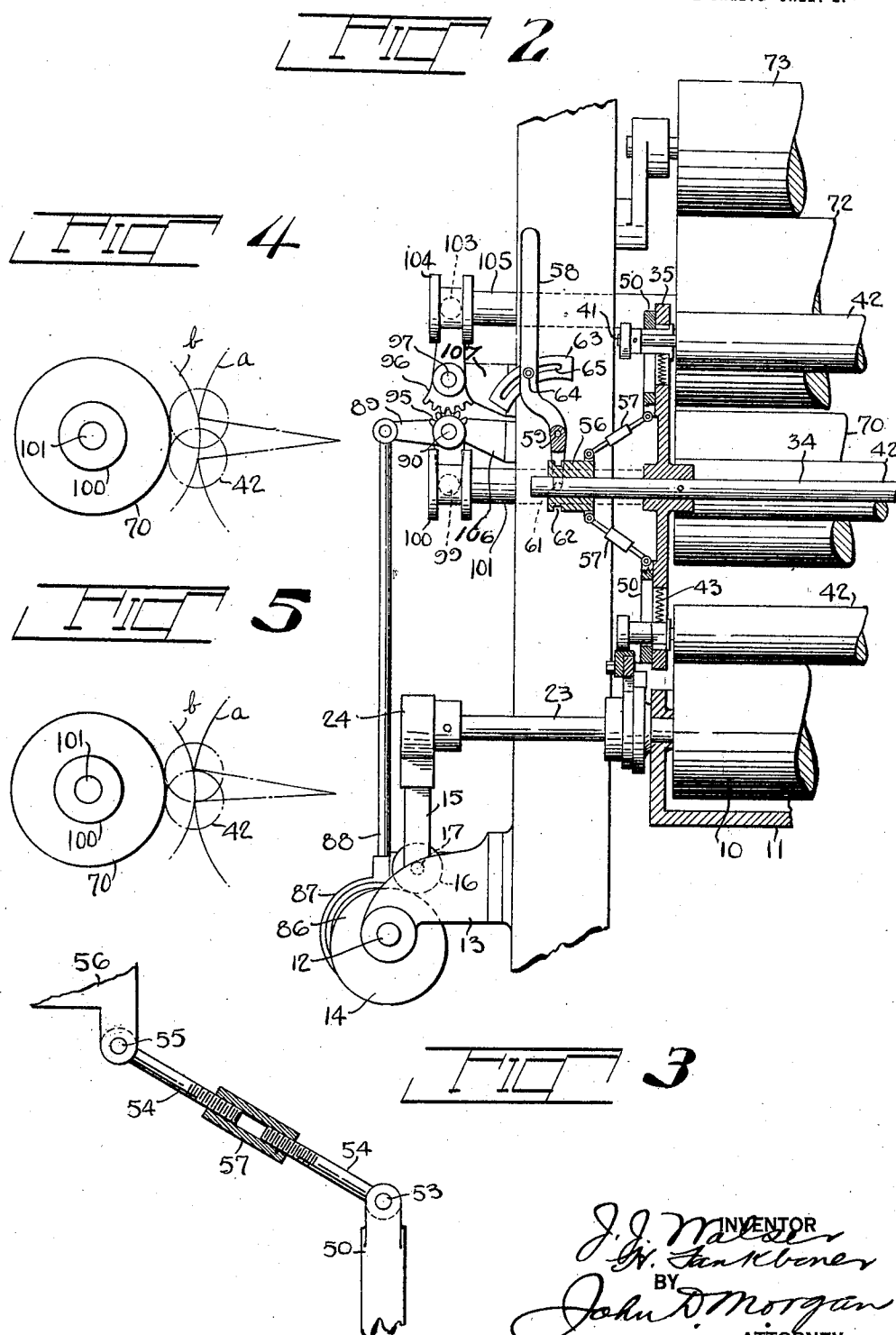


INKING MECHANISM.

1,376,983.

Patented May 3, 1921.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

JOSEPH J. WALSER, OF ANN ARBOR, MICHIGAN, AND HARLAND FANKBONER, OF CHICAGO, ILLINOIS, ASSIGNORS TO GOSS PRINTING PRESS COMPANY, A CORPORATION OF ILLINOIS.

INKING MECHANISM.

1,376,983.

Specification of Letters Patent.

Patented May 3, 1921.

Application filed March 12, 1920. Serial No. 365,356.

To all whom it may concern:

Be it known that we, JOSEPH J. WALSER and HARLAND FANKBONER, citizens of the United States, residing, respectively, in Ann Arbor, Michigan, and in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Inking Mechanism, of which the following is a specification.

The invention relates to printing presses, and more particularly to the inking mechanism and cooperating parts, the invention being directed and especially adapted in its chief aspects or features to inking mechanism fitted and adapted for fast rotary presses, such as are used for newspaper work and some magazine work.

Objects and advantages of the invention will be set forth in part hereinafter, and in part will be obvious herefrom, or may be learned by practice with the invention; the same being realized and attained through the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, arrangements, constructions, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description serve to explain the principles of the invention.

Of the drawings:—

Figure 1 is a fragmentary side elevation, partly diagrammatic, of the inking mechanism and a rotary printing couple of a printing press embodying the invention;

Fig. 2 is a fragmentary end elevation, with parts in section, looking at Fig. 1 from the right;

Fig. 3 is an enlarged fragmentary detail, partly in section, of the connecting rod or links in the ductor roller control mechanism;

Figs. 4 and 5 are diagrammatic views showing the travel of the ductor rollers along the periphery of the inking drum or fountain roller or both; and

Fig. 6 is a fragmentary detail, partly in section, showing the mounting of the ductor roller in its carrying arm and in the controlling or adjusting slide.

Referring now in detail to the embodied

mechanism, illustrated by way of example in the accompanying drawings, a rotary printing couple is represented having a form cylinder 1 with its shaft 2 running in bearings 3, and a cooperating impression cylinder 4, having a shaft 5 running in bearings 6. The web *x* runs through between the cylinders in the usual manner, and is printed upon by the plates upon the form cylinder 1.

In accordance with one feature of the invention, and as previously indicated, an intermittently rotatable fountain roller is provided, although so far as concerns many features of the invention, a continuously rotating fountain roller could be utilized. In the embodied form thereof a fountain roller 10 is provided operating in an ink fountain 11. The intermittently operating actuating means for the ductor roller may be of any suitable or adequate form, and as illustrated herein, a shaft 12 is journaled in suitable brackets 13 mounted on the machine frame, and carried on shaft 12 is a cam 14. Coöperating with the cam 14 is a longitudinally-reciprocating rack bar 15, and carried by said rack bar 15 is a cam roller 16, which roller coöperates with the cam 14. The cam roller 16 is fixed to the bar 15 in a suitable manner, as by a bolt 17. The rack bar 15 has fixed thereto at 18 a longitudinally extending guide rod 19, which guide rod works in a guiding aperture in the brackets or lugs 20 fixed to the machine frame. Thus as the shaft 12 rotates rack bar 15 and guiding rod 19 are vertically reciprocated (Fig. 1).

Rack bar 15 is provided with a series of teeth 21, which teeth mesh with a toothed sector 22, carried loosely upon a shaft 23. A roller 24 is mounted in the bracket 20, and bears against the back of the rod 15 to hold it to its work. Fixed to reciprocate with the geared sector 22 is a pawl lever 25 provided with a pawl 26. The pawl 26 coöperates with a ratchet wheel 28, which ratchet wheel is fixed upon the shaft 23 of the fountain ink roller 11. Thus as the rack bar 15 reciprocates, the pawl 26 is oscillated to and fro, thereby imparting intermittent rotary movement to the ink fountain roller 11. Suitable means for varying the throw or travel of the pawl 26 or of its engagement with ratchet wheel 28, are provided,

but are omitted from the drawings for the sake of clearness, together with other details of the associated mechanism.

In accordance with certain features of the invention, and as herein embodied, a plurality of ductor rollers are preferably provided, and in accordance with one feature of the invention the ductor rollers travel in an endless circular path, the ductor rollers yielding or moving radially; so as to travel along the periphery of the ink drum, of the fountain roller, or of both. In conjunction and cooperation with the foregoing there are provided means for governing the length of the path of travel of the ductor rollers upon or along the periphery of either the ink drum or the fountain roller, such means in accordance with certain features of the invention being mounted upon the ductor roller carrier, and preferably upon the shaft from which the ductor rollers are supported and around which they rotate.

Referring to the details of the present embodiment, and having in mind the preferential employment of a plurality of ductor rollers, a shaft (or equivalent stub shafts) 34 is journaled in the machine frame and is preferably continuously and uni-directionally driven by suitable means, such as the gearing usually employed on printing presses for imparting such movement (not shown). Fixed upon the shaft 34 and extending radially therefrom are a plurality of arms 35, 36, 37 and 38. Each of these arms has formed in the outer end thereof a closed bearing aperture 39, and longitudinally or radially slidable in the aperture is a journal box 40, within which box is journaled the shaft or pintles 41 of the corresponding ductor roller 42.

The embodied form of resilient means for permitting radial movement of the ductor roller 42 to capacitate it for traveling about the periphery of the ductor roller, or the ink drum, or both, comprises a spring 43 in compression between the inner end of each of the apertures 39 and the corresponding sliding journal box 40 of the ductor roller.

The embodied form of means for controlling or regulating the ink supply by varying or governing the extent or distance of the travel of the ductor roller along the periphery of the ink drum, or the fountain roller, or both, comprises devices mounted upon the ductor roller carrier for moving the ductor roller radially, or for limiting its outside or extreme radial position under the impulsion of the spring 43. In the present case this means controls or operates all four ductor rollers. As embodied, a frame 50 is slidably mounted upon each of the arms 35, 36, 37 and 38, the frame 50 having an aperture 51 formed therein in alinement with the aperture 39 in the arm it elf, but being

movable with respect thereto. The corresponding journal box 40 of the ductor roller is slidable within the aperture 51 as it is within the aperture 39 previously described.

As embodied the cooperating portions of this mechanism for varying or governing the action of the ductor rollers are carried upon the shaft 34. The entire mechanism is controlled by through settable devices connected to and operating the mechanism, such devices being mounted in stationary position upon the machine frame. Thus the inking can be varied, modified and controlled very readily while the press is running.

Referring to the details thereof, the frame 50 is slidable within a flange 52 upon the corresponding arm of the ductor roller carrier. Pivoted at 53 to the frame 50 is a link 54, which link at its opposite end 55 is pivoted to a sleeve 56, the sleeve being loose upon and slidable along the shaft 34 of the ductor roller carrier. Means are further provided for independently adjusting or varying the position of each ductor roller in cooperation with the foregoing described means for varying and controlling them collectively. To effect this, as embodied, each link 54 is provided with a threaded sleeve or turn-buckle 57, to vary the length of the link and thereby to regulate the position of the particular ductor roller with respect to the fountain roller and the ink drum and also with respect to the other ductor roller. This enables adjustment to be made for difference in shrinkage between different rollers, as well as providing for other variations and differences.

The settable devices controlling the foregoing described mechanism and mounted in stationary position upon the machine frame comprise a lever 58, pivoted upon the frame at 59, and having a yoked end 60 straddling the collar 56, and having pins 61 projecting into an annular groove 62 formed in the sleeve 56. A quadrant or segment plate 63 may be mounted on the machine frame, and suitably scaled or marked, and means for fastening the lever 58 in position may be provided such as a clamping nut 64 operating in a slot 65 in the quadrant 63. This mechanism is duplicated at the opposite side of the machine. Thus a uniform and exact adjustment may be provided or effected at each side of the machine for both ends of the ductor roller.

The ink drum 70 shown herein as cooperating with the ductor rollers, and taking the ink therefrom to be forwarded and applied to the printing plates upon the cylinder 1, may represent any desired element or member in the inking system which is adapted to receive the ink from the ductor roller and to participate in its distribution, forwarding and supply to the printing plates on the form cylinder, the remaining parts

of the inking mechanism being shown herein more or less conventionally.

The ink drum 70 coöperates with a form inking roller 71 which supplies ink to the plates upon the form cylinder 1, and also to another ink drum 72, which ink drum also supplies ink to a form roller 73, the form roller 73 inking the plates upon the form cylinder 1. Coöperating with form roller 71 is a smooth metal roller 74, running frictionally in contact with the form roller and assisting in the distribution of the ink on the form roller. It will be understood that the form and number of these various members or elements of the inking mechanism may be varied without affecting the principles of the invention.

Suitable vibrating mechanism is provided for vibrating certain or all of the members described.

In the embodied form of inking means a shaft 12 has mounted thereon an eccentric 86, the strap 87 of which is connected to a rod 88 through which the eccentric actuates the vibrating mechanism. Rod 88 is pivotally connected to an arm 89 fixed to a shaft 90, which shaft is journaled in a bracket 106 mounted on the machine frame. Fixed to the shaft 90 is an arm 91, having at its outer end a roller 92 working in a grooved collar 93 fixed on the shaft 94 of roller 74. Fixed also to shaft 90 is a geared sector 95 which intermeshes with the geared sector 96, fixed on a shaft 97, journaled in a bracket 107 mounted on the machine frame. Fixed to shaft 97 is an arm 98 having at its outer end a roller 99 working in a grooved collar 100, fixed on the shaft 101 of the ink drum 70. Fixed also to shaft 97 is an arm 102 having at its outer end a roller 103 working in a grooved collar 104, fixed to the shaft 105 of ink drum 72.

The mechanism as embodied regulates or determines the extent of the travel of the ductor roller on the peripheries of both the fountain roller and of the ink drum, as already described, by regulating and varying the position of the ductor roller along its arms. If it be desired to vary the ink transferring action as between the fountain roller and the ink drum, as for instance by shortening the travel of the ductor roller on the ink drum while maintaining the same amount of ink delivered from the fountain roller to the ductor roller, it is only necessary to increase the throw of the fountain roller by means of the ratchet 26. The reverse action from this, as well as any other desired variation of the action at the fountain roller and ink drum will be clear from the foregoing.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made thereupon within the scope of the accom-

panying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What we claim is:—

1. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of one of said other members, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply.

2. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of the ink drum, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply.

3. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of both of said other members, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply.

4. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of one of said other members, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply and means permitting the ductor roller to yield resiliently from the setting of said varying means to effect its said peripheral travel.

5. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of the ink drum, means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply and means permitting the ductor roller to yield resiliently from the setting of said varying means to effect its said peripheral travel.

6. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of one of said other members, means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply and means permitting the ductor roller to yield resiliently inwardly radially from the setting of said varying means to effect its said peripheral travel.

7. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, a ductor roller mount-

ed on the shaft and adapted to travel along the periphery of the ink drum, means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply and means permitting the ductor roller to yield resiliently inwardly radially from the setting of said varying means to effect its said peripheral travel.

8. A printing press inking mechanism including in combination an intermittently rotated fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of one of said other members, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply.

9. A printing press inking mechanism including in combination an intermittently rotated fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of one of said other members, means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply and means permitting the ductor roller to yield resiliently from the setting of said varying means to effect its said peripheral travel.

10. A printing press inking mechanism including in combination an intermittently rotated fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of the ink drum, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply.

11. A printing press inking mechanism including in combination an intermittently rotated fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of one of said other members, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply and means permitting the ductor roller to yield resiliently inwardly radially from the setting of said varying means to effect its said peripheral travel.

12. A printing press inking mechanism including in combination a fountain roller, a variably rotatable fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of the ink drum, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply.

13. A printing press inking mechanism including in combination a fountain roller, a variably rotatable fountain roller, an ink drum, a shaft, a ductor roller mounted on

the shaft and adapted to travel along the periphery of the ink drum, means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply and means permitting the ductor roller to yield resiliently from the setting of said varying means to effect its said peripheral travel.

14. A printing press inking mechanism including in combination a fountain roller, a variably rotatable fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of the ink drum, means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply, and means permitting the ductor roller to yield resiliently inwardly radially from the setting of said varying means to effect its said peripheral travel.

15. A printing press inking mechanism including in combination an intermittently rotated fountain roller, a variably rotatable fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of one of said other members, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply.

16. A printing press inking mechanism including in combination an intermittently rotated fountain roller, a variably rotatable fountain roller, an ink drum, a shaft, a ductor roller mounted on the shaft and adapted to travel along the periphery of the ink drum, and means mounted upon the shaft and settable for varying the extent of said travel of the ductor roller to control the ink supply.

17. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, an arm on the shaft, a ductor roller slidably mounted on said arm, a spring impelling the roller outwardly and settable means mounted on the arm for varying the outward limit of movement of the ductor roller.

18. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, an arm on the shaft, a ductor roller loosely mounted on said arm, a spring impelling the roller outwardly and settable means mounted on the shaft for varying the outward limit of movement of the ductor roller.

19. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, an arm on the shaft, a ductor roller loosely mounted on said arm, a spring impelling the roller outwardly and settable means mounted on the shaft and arm for varying the outward limit of movement of the ductor roller.

20. A printing press inking mechanism in-

cluding in combination an intermittently rotated fountain roller, a continuously rotated ink drum, a shaft, an arm on the shaft, a ductor roller directly mounted on said arm, 5 a spring impelling the roller outwardly and settable means mounted on the arm for varying the outward limit of movement of the ductor roller.

21. A printing press inking mechanism including in combination an intermittently rotated fountain roller, a continuously rotated ink drum, a shaft, an arm on the shaft, a ductor roller loosely mounted on said arm, a spring impelling the roller outwardly and 15 settable means mounted on the shaft for varying the outward limit of movement of the ductor roller.

22. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, an arm on the shaft, a 20 variably rotatable fountain roller, a ductor roller directly and slidably mounted on said arm, a spring impelling the roller outwardly and settable means mounted on the arm for 25 varying the outward limit of movement of the ductor roller.

23. A printing press inking mechanism including in combination a fountain roller, an ink drum, a shaft, an arm on the shaft, a 30 variably rotatable fountain roller, a ductor roller loosely mounted on said arm, a spring impelling the roller outwardly and settable means mounted on the shaft for varying the outward limit of movement of the ductor 35 roller.

24. A printing press inking mechanism including in combination an intermittently rotated fountain roller, a continuously rotated ink drum, a shaft, a variably rotatable fountain roller, a ductor roller loosely mounted 40 on said arm, a spring impelling the roller outwardly and settable means mounted on the arm for varying the outward limit of movement of the ductor roller.

25. A printing press inking mechanism including in combination an intermittently rotated fountain roller, a continuously rotated ink drum, a shaft, arms mounted on the shaft, a ductor roller loosely mounted in the 50 arms on said shaft, a spring impelling the roller outwardly and settable means mounted on the arm and connected to the shaft for varying the outward limit of movement of the ductor roller.

26. A printing press inking mechanism including in combination an ink drum, a fountain roller, a ductor roller traveling about a center, means located between the roller and its center for radially positioning the ductor 60 roller to vary its peripheral travel during the transfer of the ink and a variably rotatable fountain roller.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

JOSEPH J. WALSER.

HARLAND FANKBONER.

Witnesses:

A. E. MALLOY,

FRANK J. HALSEY.