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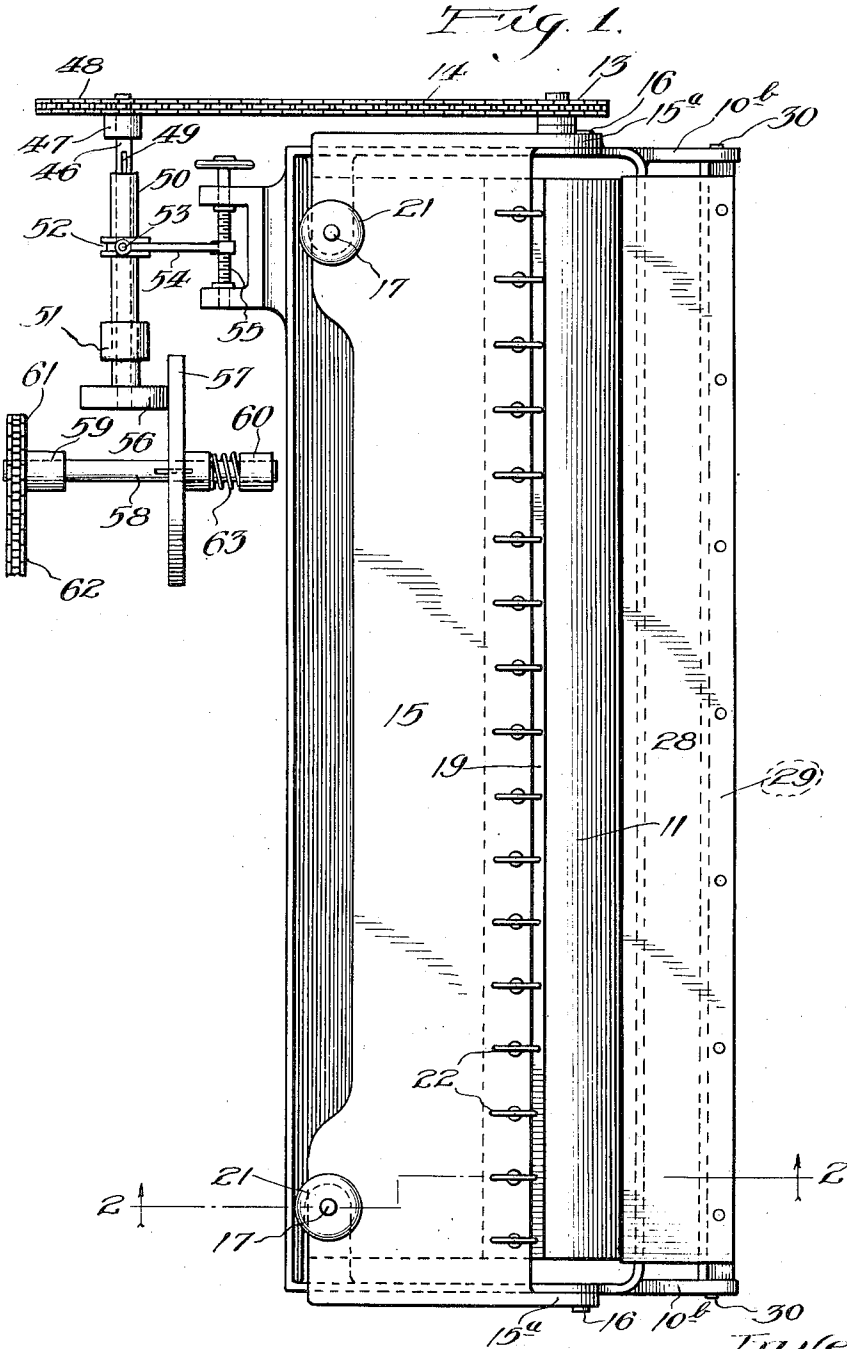
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INK FOUNTAIN FOR PRINTING PRESSES

Filed March 9, 1927

2 Sheets-Sheet 1



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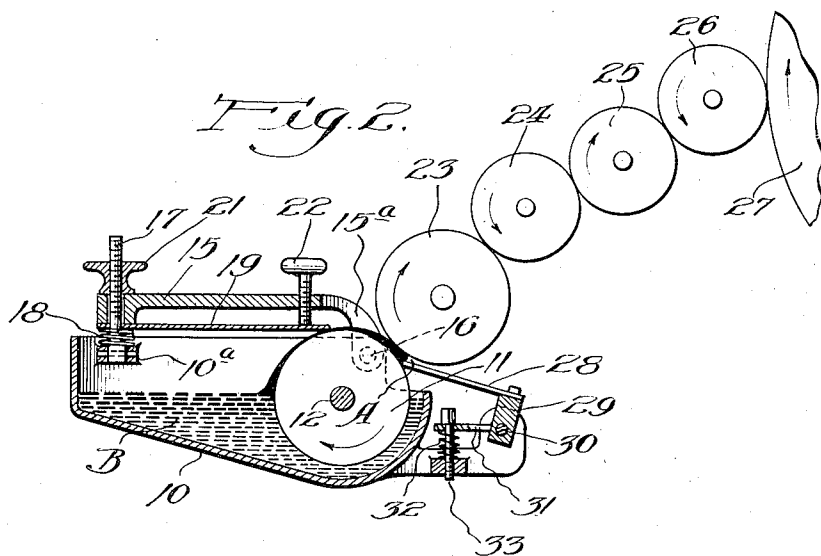
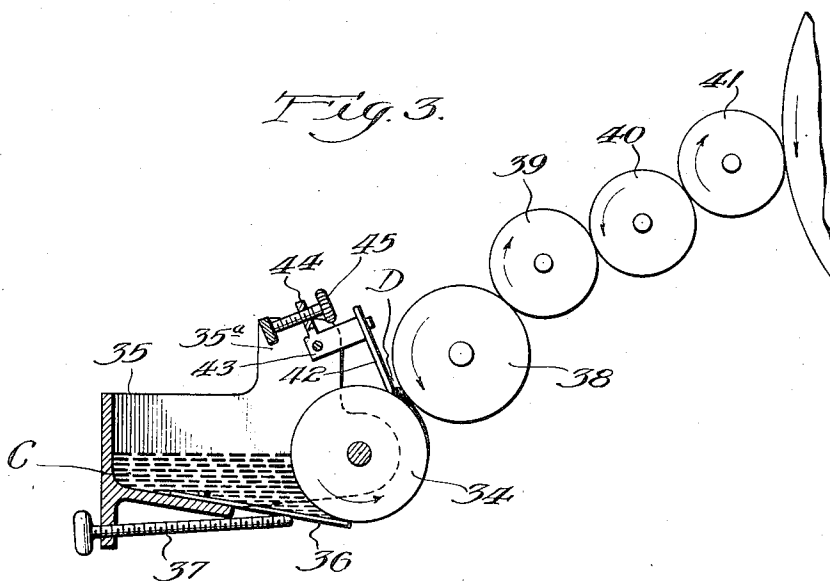
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INK FOUNTAIN FOR PRINTING PRESSES

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. 2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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INK FOUNTAIN FOR PRINTING PRESSES

Application filed March 9, 1927. Serial No. 173,983.

This invention relates to ink fountains for printing presses and the like.

An object of the invention is to provide an ink fountain which will continuously and uniformly feed ink to the press cylinders and which at the same time will not carry paper dust and the like from the printing mechanism back through the train of rollers and finally deposited in the reservoir of the ink feeding mechanism as is now done by nearly all the present forms of the ink feeding mechanisms.

Another object is to provide an improved means for regulating the flow of ink to the mechanism.

These and other objects which will be seen from the following description are accomplished by this invention which is fully described in the following specification and shown in the accompanying drawings, in which:

Figure 1 is a top plan view of the ink feeding mechanism showing the ink reservoir with the first ink roll in place;

Fig. 2 is a section through the same on the line 2—2 of Fig. 1, but showing diagrammatically, in addition, a train of ink rolls which carry the ink to the printing cylinder; and

Fig. 3 is a similar view showing a modified form of the same.

The embodiment illustrated in Figs. 1 and 2 comprises an ink reservoir 10 in which is mounted an ink roller 11 upon a shaft 12 which is mounted in suitable journals in the sides of the ink reservoir. This shaft carries a sprocket 13 which is driven by a suitable chain 14. A frame 15 extends across the top of the ink reservoir overlying the same and has two ears 15^a which are pivotally secured to the reservoir by means of pins 16. Lugs 10^a, preferably at the ends of the reservoir carry screws 17 which pass through openings 18 in the back of the frame 15. An ink blade 19 is riveted or otherwise rigidly attached at its rear edge to the under-face of the frame 15. The ends of the frame 15 rest upon springs 20 which in turn rest upon the ears 10^a. A nut 21 is threaded upon the screw 17 and is movable up and down to raise and lower the frame 15 and the ink blade 19.

This regulates the flow from the ink blade as a whole.

The inner edge of the ink blade 19 overlies the ink roller 11 and this inner edge is adjustable toward and from the roller by means of adjusting screws 22. These adjusting screws 22 are placed at short spaced intervals across the frame as shown in Fig. 1, and regulate the flow under each screw.

Thus it will be seen that the flow of ink to the mechanism is regulated primarily by means of the adjusting screws 22 and the nuts 21. The ink blade 19 is made of thin sheet metal so that it readily responds to the pressure at any point in its length due to the adjusting screws 22.

A train of ink rolls consisting of rolls 23, 24, 25 and 26 carry the ink to the printing cylinder 27. This train as shown is illustrative only and as many rolls may be used for this purpose as desired. These rolls are automatically driven in opposite directions by any suitable form of driving mechanism, not shown, the roll 23 being preferably driven in the same rotative direction as the ink roll 11 so that their adjacent surfaces are moving in opposite directions.

The doctor blade 28 extending substantially the length of the ink roll 11 is mounted upon a bar 29 which is carried at its ends upon pins 30 which are suitably journaled in extensions 10^b of the reservoir 10. The bar 29 carries, preferably at each end, an arm 31 which bears upon a spring 32 and is held thereon by means of an adjusting screw 33.

This doctor blade bears upon the ink roll 11 at a point adjacent to the first roller 23 of the ink distributing train and serves to scrape most of the ink from the ink roll 11 and to hold it in a liquid mass A in contact with the roll 23.

Thus it will be seen that the only contact which is had between the train of ink distributing rollers and the ink roll 11 is through this liquid mass of ink A which piles up in front of the doctor blade 28. It has been found that this arrangement combined with the ink blade 19 gives a very uniform feed of ink and one which can be closely regulated so that it requires relatively little attention.

Another great advantage of this construction is that since there is no direct contact between the chain of rollers and the ink roll 11, almost none of the paper dust and the like which collects upon the distributing rolls is transmitted to the ink roll 11, and thence to the ink B in the ink reservoir. Consequently the quality of the ink in the reservoir is not impaired even after long runs, and since the quality of this ink remains practically constant, and since it is quite free from dust and sediment, the ink is able to flow much more freely and uniformly beneath the ink blade 19. As a result of this much less attention is required to keep the ink flowing uniformly to the train of rollers.

In the above connection, it will be observed that even though solid matter does pass from the roller 23 to the ink at the point A, very little of it will pass the doctor blade 28, but instead remains in suspension in the body of the ink A and is later returned to the roller 23.

In addition, as has been previously pointed out, adjustment of the flow of ink at various points across the roll 11 is effected by means of the several adjusting screws 22.

In Fig. 3 is shown a modified form of the device in which the first ink roll 34 closes one side of the reservoir 35 and forms an abutment which holds the ink C. The bottom of this reservoir is closed partly by means of an ink plate 36 which is adjustably held in contact with the ink roll 34 by means of adjusting screw 37.

A train of ink rollers 38, 39, 40, 41 and the like are driven, as indicated by the arrows, by gears and the like, not shown. The roller 38 is spaced a short distance from the ink roll 34 and a doctor blade 42 bears upon the top of the ink roll 34, and is carried upon a bar 43, the ends of which are journaled in the lugs 35^a. The bar 43 carries an arm 44 through which passes an adjusting screw 45 which varies the pressure of the doctor blade 42 on the ink roll 34.

The action of this ink fountain is quite similar to the fountain shown in Fig. 2. The ink which passes the ink blade 36 is carried around until it encounters the doctor blade 42 and most of it is scraped off forming a smooth accumulation D which piles up until it comes in contact with the first roller 38 of the train. This roller passes it on to the next and so on in a well known manner.

Here again the dust from the printing cylinder will be fed back through the train of ink rollers, but it cannot pass the accumulation of ink D for the reasons previously stated in connection with the form shown in Fig. 2.

I have provided a means for quickly, easily and delicately varying the flow of ink to the distributing rollers which consists of mechanism for varying the speed of the ink roll

11. This, it will be seen, is in addition to the means for varying the ink fed which have already been described. This comprises a shaft 46 journaled at one end in a bearing 47 and carrying a sprocket 48 which drives the chain 14. The shaft 46 is splined at 49 and slidable in the hollow shaft 50 which is slidably journaled in a bearing 51.

The shaft 50 has an annular groove 52 in which operates a pin 53 which is carried by an arm 54, the latter being movable back and forth by means of a screw 55 so as to move the shaft 50 toward and from the bearing 47. The opposite end of this shaft carries a friction wheel 56 which bears upon a plate 57, the latter being slidably keyed upon a shaft 58 which is journaled in bearings 59, 60 and carries a sprocket 61 which is driven by a chain 62 from any suitable source of power, not shown. The plate 57 is yieldably pressed against the friction wheel by means of a spring 63.

Thus it will be seen that by turning the screw 55, the shaft 50 and friction wheel 56 is moved in and out on the friction disk 57 thereby decreasing or increasing the speed of the shaft 50 and consequently varying in the same degree the speed of the ink roll 11.

While I have shown and described two embodiments of this invention, it is to be understood that it is capable of many modifications. Changes therefore in the construction and arrangement may be made which do not depart from the spirit and scope of the invention as disclosed in the appended claims.

I claim:

1. In an ink fountain for printing rolls and the like, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a second roll spaced a short distance from the first-mentioned roll, and a doctor blade operable on the first-mentioned roll to scrape ink therefrom and cause the ink adjacent the scraping edge of said blade to contact with the second-mentioned roll.

2. In an ink fountain for printing rolls and the like, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a second roll spaced a short distance from the first-mentioned roll, the nearest surfaces of said rolls being driven in opposite directions, and a doctor blade operable on the first-mentioned roll to scrape ink therefrom and cause it to be delivered to the second-mentioned roll.

3. In an ink fountain for printing rolls and the like, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a second roll spaced a short distance from the first-mentioned roll, and a doctor blade operable on the first-mentioned roll and at a point near the other roll so as to cause the ink scraped off the first roll to pile up until it comes in contact with the second roll.

4. In an ink fountain for printing rolls

and the like, an ink reservoir, an ink roll adapted to dip into the ink in said reservoir, a second roll spaced a short distance from the first-mentioned roll, and a doctor blade operable on the first-mentioned roll to scrape ink therefrom and cause the ink adjacent the scraping edge of said blade to contact with the second-mentioned roll.

5. In an ink fountain for printing rolls and the like, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a second roll spaced a short distance from the first-mentioned roll, and a doctor blade operable on the first-mentioned roll at a point immediately after it has passed the second-mentioned roll to scrape ink therefrom and cause it to be delivered to the second-mentioned roll.

6. In an ink fountain for printing presses and the like, an ink reservoir, an ink roll in contact with the ink in said receiver, a train of ink distributing rollers, the first roller of said train being spaced a short distance from said ink roll, and means for stopping the ink carried by said roll at a point adjacent the first ink roller for the purpose set forth.

7. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a member for regulating the flow of ink to said roll, a blade for stopping the ink passing said member, and means for picking up the ink in front of said blade and delivering it to a train of distributing rollers.

8. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a member for regulating the flow of ink to said roll, a blade for stopping the ink passing said member, and means not in contact with said ink roll for picking up the ink in front of said blade and delivering it to a train of distributing rollers.

9. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a member for regulating the flow of ink to said roll, a blade for stopping the ink passing said member so as to cause the ink to pile up in front of said blade, and means for picking up the ink in front of said blade and delivering it to a train of distributing rollers.

10. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a member for regulating the flow of ink to said roll, distributing rollers, and means for recovering substantially all the ink from said roll and delivering it to said distributing rollers.

11. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a member for regulating the flow of ink to said roll, a blade for stopping the ink passing said member, and a roller for picking up the ink in front

of said blade and delivering it to a train of distributing rollers.

12. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a member for regulating the flow of ink to said roll, a blade for stopping the ink passing said member, and a roller having a surface motion opposite to that of the adjacent surface of the ink roll for picking up the ink in front of said blade and delivering it to a train of distributing rollers.

13. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a member for regulating the flow of ink to said roll, a blade for stopping the ink passing said member, means for picking up the ink in front of said blade and delivering it to a train of distributing rollers, and means for varying the speed of the ink roll.

14. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, distributing rollers, means for recovering substantially all the ink from said roll and delivering it to said distributing rollers, and means for varying the rate of flow of ink to the ink roll.

15. An ink fountain for printing presses comprising an ink reservoir, an ink roller in contact with the ink in said reservoir, a train of ink distributing rollers, means for regulating the flow of ink to various portions of said ink roller, and means for transferring to said ink distributing rollers substantially all the ink passing said means for regulating the flow of ink to the ink roller.

16. An ink fountain for printing presses comprising an ink reservoir, an ink roller in contact with the ink in said reservoir, a train of ink distributing rollers, means for regulating the flow of ink to various portions of said ink roller, and means for continuously transferring to said ink distributing rollers substantially all the ink passing said means for regulating the flow of ink to the ink roller.

17. In an ink fountain for printing presses, regulated means for feeding to an ink roller only the amount of ink required by the press, means for stripping substantially all of this ink from the ink roller, and means for feeding substantially all of the ink as stripped to the printing cylinder.

18. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, a member for regulating the flow of ink to said roll, distributing rollers, and means to increase the thickness of the film of ink on said roll for recovering substantially all the ink from said roll and delivering it to said distributing rollers.

19. In an ink feeding mechanism, an ink reservoir, an ink roll adapted to make contact with ink in said reservoir, distributing rollers,

ers, means to increase the thickness of the film of ink on said roll for recovering substantially all the ink from said roll and delivering it to said distributing rollers, and means for varying the rate of flow of ink to the ink roll.

20. An ink fountain for printing presses comprising an ink reservoir, an ink roller in contact with the ink in said reservoir, a train of ink distributing rolls, means for regulating the flow of ink to various portions of said ink roller, and means to increase the thickness of the film of ink on said roller for transferring to said ink distributing rolls substantially all of the ink passing said means for regulating the flow of ink to the ink roller.

21. An ink fountain for printing presses comprising an ink reservoir, an ink roller in contact with the ink in said reservoir, a train of ink distributing rolls, means for regulating the flow of ink to various portions of said ink roller, and means to increase the thickness of the film of ink on said roller for continuously transferring to said ink distributing rolls substantially all of the ink passing said means for regulating the flow of ink to said ink roller.

22. In an ink fountain for printing presses, regulated means for feeding to an ink roller only the amount of ink required by the press, means for stripping substantially all of this ink from the ink roller and increasing the thickness of the film thereof, and means for feeding substantially all of the ink as stripped, to the printing cylinder.

23. In an ink fountain for printing presses, regulated means for continuously feeding to an ink roller only the amount of ink required by the press, and means for feeding substantially all of the ink to the printing cylinder.

24. In an ink fountain for printing presses, an open reservoir for ink, regulated means for feeding from the reservoir to an ink roller only the amount of ink required by the press, and means for feeding substantially all of the ink to the printing cylinder.

25. The method of inking a printing press consisting in feeding practically the exact quantity of ink required by the press in a film from the source of supply, and in increasing the thickness of said film at the zone of transfer of the ink to the printing press.

26. The method of inking a printing press having an ink roller and distributing rollers consisting in feeding the ink to the ink roller in a film from the source of supply and in increasing the thickness of said film at the zone of transfer of the ink from the ink roll to the adjacent one of the distributing rollers for spreading the ink into contact with this distributing roll.

27. The method of inking a printing press consisting in feeding practically the exact quantity of ink required by the printing press

in a film of predetermined thickness from the source of supply, and in increasing the thickness of said film at the zone of transfer of said ink to the printing press.

28. The method of inking a printing press consisting in feeding practically the exact quantity of ink required by the press as a film on a roller operating in the source of ink supply, in increasing the thickness of said film at a zone spaced from the source of supply, and in transferring the ink from said zone to the printing press.

29. The method of inking a printing press consisting in feeding practically the exact quantity of ink required by the press in a film of regulated thickness on a roller operating in the source of ink supply in increasing the thickness of said film at a zone spaced from the source of supply, and in transferring the ink from said zone to the printing press.

30. The method of inking a printing press consisting in feeding practically the exact quantity of ink required by the press in a film of regulated thickness on a roller operating in the source of ink supply in increasing the thickness of said film at a zone spaced from the source of supply, and in transferring the ink from said zone to the ink rolls of the printing press.

31. In an ink feeding mechanism, an ink reservoir, an ink roller in contact with the ink in said reservoir, a second roller disposed adjacent said ink roller for receiving ink from the latter, and means for transferring substantially all of the ink from said ink roller to said second roller and preventing ink, lint and the like, from passing to said reservoir.

In testimony whereof I have hereunto set my hand this 23d day of February, 1927.

HARLEY C. ALGER.