Nov. 25, 1958 C. A. HARLESS 2,861,516

INK ROLLER MOUNTING

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Fig. 1.

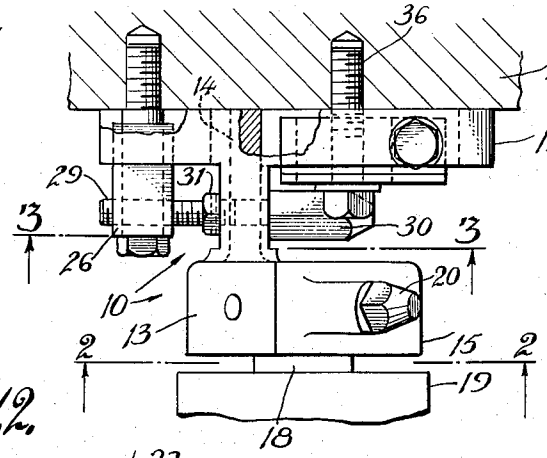


Fig. 2.

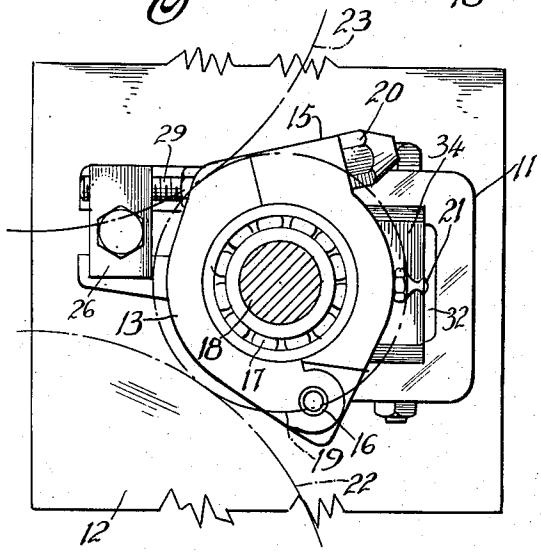


Fig. 3.

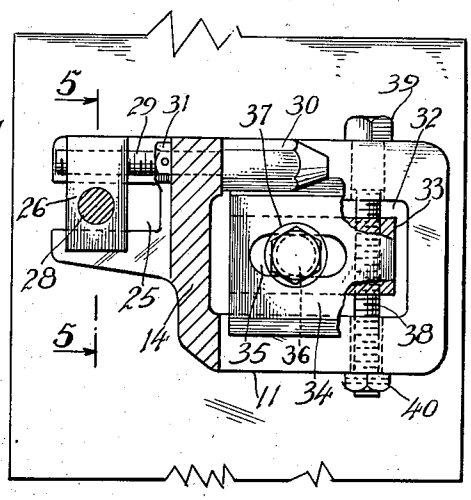


Fig. 4.

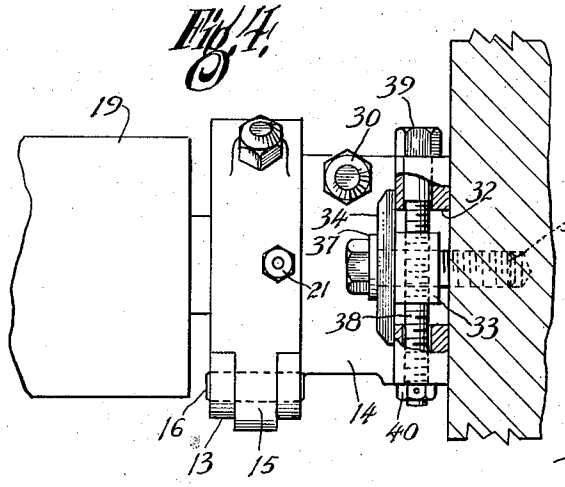
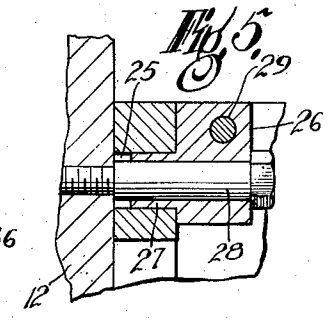


Fig. 5.



INVENTOR.
Charles A. Harless

BY Hauga & Hainer

ATTORNEYS

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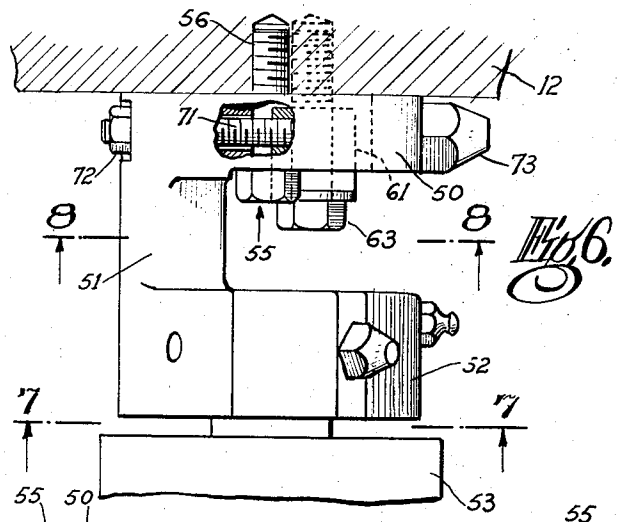
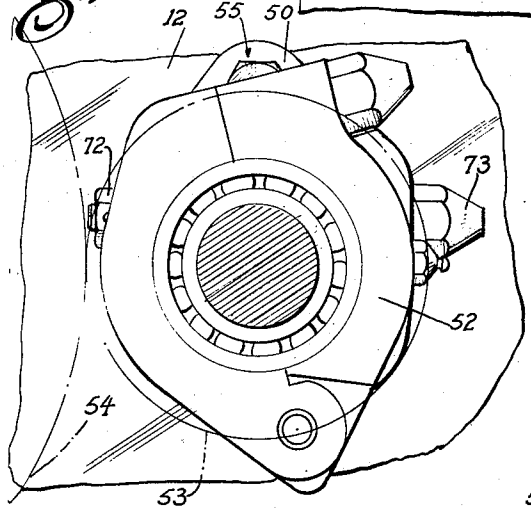


Fig. 6.

Fig. 7.



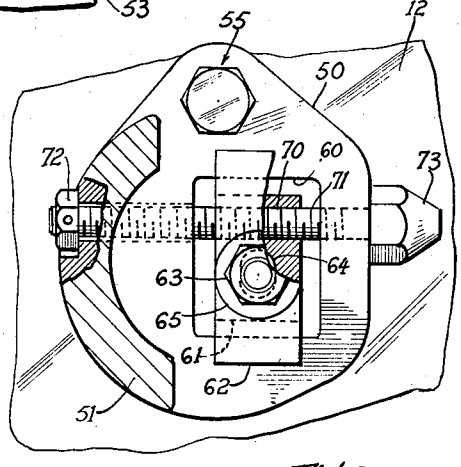


Fig. 8.

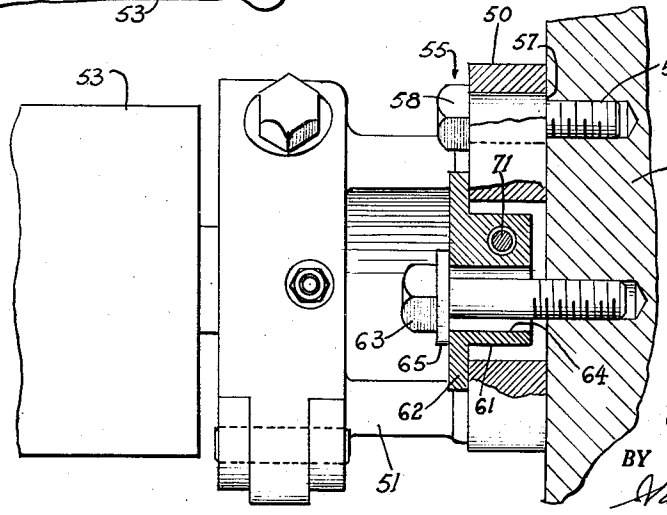


Fig. 9.

INVENTOR.
Charles A. Harless
BY
Dawyer & Kennedy
ATTORNEYS

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INK ROLLER MOUNTING

Charles A. Harless, Riverside, Conn., assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York

Application March 24, 1953, Serial No. 344,444

2 Claims. (Cl. 101—348)

This invention relates to ink roller mountings for use in printing machines.

It is an object of the invention to provide an ink roller mounting having the maximum rigidity consistent with the required adjustments.

A second object is to provide a mounting which is as compact as possible.

Still another object is to provide a mounting which may be fixed adjustably to the inner face of the machine frame which requires only simple boring and tapping of the frame.

Ink roller mountings embodying the invention in preferred forms will now be described with reference to the accompanying drawing, and the features forming the invention will then be pointed out in the appended claims.

In the drawing:

Figure 1 is a plan view, partly broken away, of an ink roller mounting embodying the invention in a preferred form;

Figures 2 and 3 are sections on the respective lines 2—2 and 3—3 of Figure 1;

Figure 4 is a side elevation, partly broken away; and

Figure 5 is a sectional detail on the line 5—5 of Figure 3.

Figure 6 is a plan view showing a modified form of ink roller mounting;

Figures 7 and 8 are sections on the respective lines 7—7 and 8—8 of Figure 6; and

Figure 9 is a side elevation, partly broken away, of the ink roller mounting of Figure 6.

The ink roller mounting of Figures 1 to 5, which will be described first, is intended primarily for use with transfer rollers where the roller transfers ink from one drum or cylinder to another, while the mounting of Figures 6 to 9 is a simplified form of structure, intended primarily for use with ink distributing rollers, which are in contact with only a single cylinder or ink drum.

The ink roller mounting includes a bracket, indicated generally by the reference numeral 10, and including a plate 11 for attachment to the frame structure 12 of the printing machine, a roller socket jaw 13 and a web 14 connecting the plate 11 and jaw 13 together. A jaw 15 hinged to the jaw 13 by a pin 16 cooperates with the jaw 13 to form the roller socket for carrying an anti-friction bearing 17, in which the shaft 18 of the roller 19 is supported. A screw 20 holds the jaws releasably together. A roller may be removed or inserted by turning the screw 20 so as to uncouple the jaws 13 and 15 and permit swinging back the jaw 15 around the pin 16. Lubrication may be provided by means of a grease gun fitting 21 in the jaw 15.

The plate 11 seats against the frame 12, as indicated, and holds the inking roller adjustably in the desired position. The roller may cooperate with a single ink drum, or may cooperate with two ink drums, or with an ink drum and printing cylinder, as usual. In Figure 2, the roller 19 is indicated as cooperating with a pair of ink drums, part of the peripheries of which are indicated

in phantom at 22 and 23, for transferring ink from one to the other.

The plate 11 is slidably and pivotally attached to the frame 12 so as to provide for the required adjustments, in a manner now to be described.

One side of the plate is formed with a slot 25, in which there is slidably mounted a block 26 overlying the plate to each side of the slot, as best shown in Figures 3 and 5, and having a reduced part 27 slidably fitting within the slot 25. Block 26 is pivotally fixed to the frame 12 by means of a stud 28 passing through a bore in the member 26. An adjusting screw rod 29 passes through a threaded cross bore in the member 26, and also through an unthreaded bore in the web 14. A head 30 of the screw 29 and a collar or nut 31, pinned or otherwise fixed on the screw, limit the axial movement of the screw rod 29 with respect to the web 14, so that when the screw is turned, the bracket 10 is moved with relation to the stud 28 so as to bring it closer to the cylinders 22, 23 or move it further away from them (to the left or right in Figure 2). The bracket 10 also has a rectangular aperture 32 receiving a generally rectangular part 33 of a clamping plate 34, which has upper and lower extensions overlying the plate 11 and slidable thereon. A slot 35 having its axis parallel to the axis of the slot 25 is formed in the part 33 and accommodates a shank of a bolt 36 which is screwed into a threaded bore in the frame 12. Washer 37, interposed between the head of the bolt 36 and the clamping plate 34, applies the clamping pressure to the member 33 when the bolt 36 is tightened. Member 33 is adjustable within the aperture 32 by means of a screw 38 passing through unthreaded bores in the plate 11 and held in position axially by its head 39 and a nut or collar 40, pinned or otherwise secured to the screw 38. The threaded central part of the screw 38 passes through a correspondingly threaded bore in the member 33, so that when screw 38 is turned, the plate 11 is swung upwardly or downwardly around its pivotal stud 28 with relation to the clamping member 3.

It will be observed that the attachment of the mounting of the invention to the frame structure requires only the boring and tapping of the frame to take the stud 28 and bolt 36. These elements are preferably located, as indicated in Figure 2, so that the axis of the slot 35 lies in a plane bisecting the planes joining the axis of the roller 19 with the axes of the respective cylinders 22 and 23 with which it cooperates. Where the roller cooperates with a single cylinder, it is preferably mounted so that the axis of slot 35 is parallel to and only slightly displaced from a plane joining the roller and cylinder axes.

It will be observed that when the member 33 is in a middle position in the cut out 32, the plane through its axis and that of the roller will be a plane bisecting the angle between the planes passing through the roller axis and the respective cylinder axes.

Where cylinders 22 and 23 with which the roller cooperates are of equal diameter, the adjusting movement of the bracket provided for rollers of different diameters is theoretically a rectilinear movement, and any pivoting around the stud 28 may be made very small by properly locating the stud and the bolt 36. Where the cylinders are of an unequal diameter, the adjusting movement required to take care of rollers of different diameters is theoretically a curve, but approximates quite closely to a straight line, so that, again, the pivotal adjustment around the stud 28 may be very small.

The adjustment of the bracket is accomplished by loosening the bolt 36 and turning screws 29 and 38 as required to position the roller. Thereafter, the bolt 36 is tightened up, locating the bracket securely in the de-

sired position. By reason of the approximate alignment of the axes of the bolt 36 and the roller 19, there is practically no tendency for the forces exerted between rollers and cylinders to rotate the bracket around this bolt, as the moment arm of the resultant of these forces around the bolt axis is practically zero. The bolt axis is also positioned very close to the roller axis, so that any moment arm created by an adjustment of the screw 38 will still be negligible. Member 26 overlying the plate 11 to each side of the groove 25 may have sufficient clearance to permit easy sliding without impairing the operation, as the tightening of the bolt 36 is sufficient to clamp the bracket firmly in place.

As will be clear from Figures 1–4, inclusive, all the necessary adjustments may readily be made by means of a socket wrench operating on the head 30 of the screw 29, and a jaw wrench operating on the heads of screw 38 and bolt 36. The extreme compactness of the design will be apparent from a consideration of the actual dimensions of a mounting in an actual machine. In an actual heavy duty, high speed machine utilizing printing cylinders about fifteen inches in diameter, the overall dimension of the bracket from the face of the frame 12 to the face of the jaws 13 and 15 toward the roller may be only a little over four inches, and the open space between the socket and the plate 11 furnishing access to the head 30 may be less than an inch and a half. The extreme compactness of the unit will be apparent.

Referring now to Figures 6 to 9, showing a modified form of mounting, the mounting comprises a bracket member including a mounting plate 50 which is adjustably attached to the frame 12, and a web 51 and roller socket jaw 52 formed integral with the mounting plate 50. The ink socket structure associated with the jaw 52 is the same as that previously described, and holds a roller 53 in contact with an ink drum, part of the periphery of which is indicated in phantom at 54 (Figure 7). The mounting plate 50 is pivotally attached to the frame 12 by a screw 55 having a threaded end 56 screwed into a tapped bore in the frame 12, and a shoulder 57 for spacing its head 58 from the frame 12 so as to permit turning of the mounting bracket around the screw 55. The mounting plate has a rectangular opening 60 receiving an extension 61 of a clamping plate 62 which extends across the opening 60 and overlaps the plate 50 above and below the opening 60. A screw 63 passes through a vertically elongated bore 64 in the member 62 and is received in a tapped bore in the frame 12. Tightening the screw 63 applies clamping pressure through a washer 65 and the clamping plate 62 to the mounting plate 50 for locking the mounting in adjusted position. The extension 61 of the clamping plate 62 also has a threaded bore 70 receiving a threaded section of an adjusting screw 71 which passes through aligned bores on each side of the opening 60. A nut 72 and the head 73 of the screw 71 hold it in position axially in the mounting plate 50. The position of the ink roller mounting is adjusted by loosening the clamping screw 63 and turning the screw 71 by applying a socket wrench or other tool to its head 73, causing the ink roller mounting to move pivotally around the screw 55. When the proper adjustment has been obtained, screw 63 is tightened, securely locking the parts in position. While the motion of the ink roller axis in making the adjustment is arcuate, it approximates quite closely to a straight line movement over the required range of adjustment to allow for variation in ink roller diameter. The screw 55 is preferably located so as to bring a plane through its axis and the ink

roller axis at right angles to a plane through the axes of the ink roller and cooperating cylinder 54. The adjustment thus closely approximates a straight line movement of the ink roller directly toward and away from the surface of the cylinder 54. The slight vertical elongation of bore 64 permits the required slight vertical movement of the clamping member 62 due to the slightly arcuate path of movement which is involved in the adjustment.

As in the case of the mounting of Figures 1–5, the integral bracket 50–52 is formed so that the ink roller axis is located close to the axis of the clamping screw 63 and substantially centrally of the mounting plate 50, providing an exceptionally compact and strong structure.

It will be observed that in both forms of construction described the attachment of the mounting to the machine frame requires only the boring and tapping of two holes in the frame, and that no great precision is required in the location of these holes. Moreover, in both cases the mounting is held in place by a clamping screw 36 or 63 which is located fairly close to the roller axis. Even if the frame surface should be slightly irregular, it will be apparent that any movement of the mounting involved in the tightening up of the clamping screw will be negligible, so that any tendency to shift the location of parts or misaline in the tightening up of the screw is eliminated.

What is claimed is:

1. In a printing machine, and in combination, a machine frame, an ink roller mounting comprising a bracket including a mounting plate, an ink roller socket member and a web integral with and connecting the mounting plate and socket member, and means for adjustably fastening the mouting plate against a machine frame, the last said means comprising a pivot block slidably fitting in the mounting plate and attaching the mounting plate pivotally and slidably to a machine frame, a clamp screw spaced from the said pivot block and releasably holding the mounting plate in adjusted position against the frame, and screw means acting between the clamp screw and the mounting plate for adjusting the position of the mounting plate on the machine frame.

2. In a printing machine, and in combination, a machine frame, an ink roller mounting comprising a bracket including a mounting plate having a slot and an aperture, an ink roller socket member and a web integral with and connecting the mounting plate and socket member, and means for adjustably fastening the mounting plate against a machine frame, the last said means comprising a pivot block slidably fitting in the mounting plate slot and attaching the mounting plate pivotally and slidably to a machine frame, a clamp member having a projection within the said aperture and overlapping the mounting plate for releasably holding the mounting plate in adjusted position against the frame, screw means acting between the clamp member and the mounting plate for adjusting the position of the mounting plate on the machine frame, and a screw spaced from the said pivot block and threadably engaged in the machine frame for pressing the clamp member against the mounting plate to hold the mounting plate in adjusted position against the machine frame.

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