April 7, 1925. 1,533,062

A. J. DAANE

INK DISTRIBUTING ROLLER

Filed Feb. 7, 1921

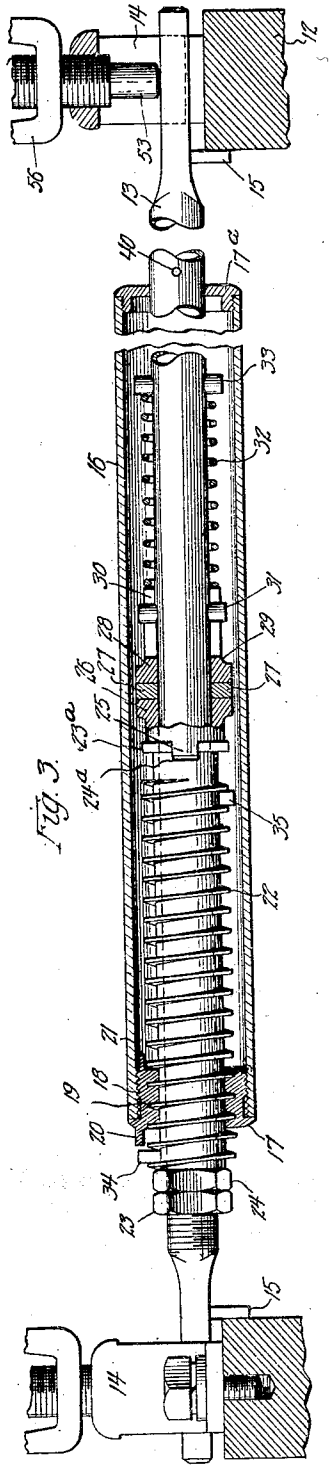


Fig. 3.

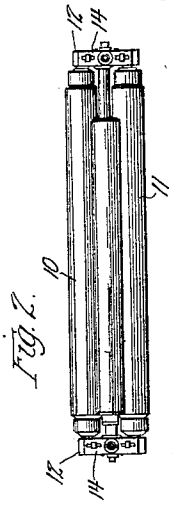


Fig. 2.

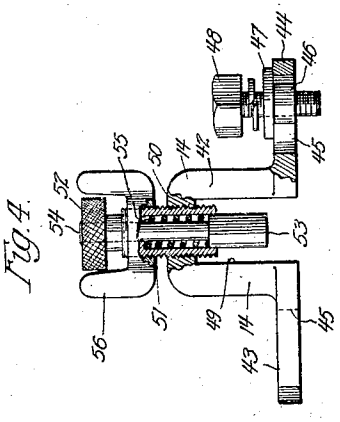


Fig. 4.

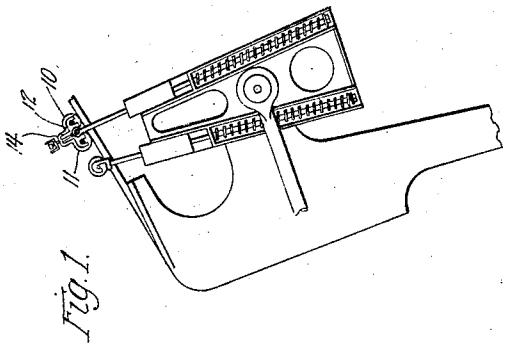


Fig. 1.

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UNITED STATES PATENT OFFICE.

ARTHUR J. DAANE, OF CHICAGO, ILLINOIS.

INK-DISTRIBUTING ROLLER.

Application filed February 7, 1921. Serial No. 443,071.

To all whom it may concern:

Be it known that I, ARTHUR J. DAANE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Ink-Distributing Rollers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to ink distributing means for printing presses, and particularly for distributing the ink upon the inking rolls of a platen press.

It is an object of the invention to provide means for evenly and uniformly applying ink to the printing surface, and particularly the inking rolls which contact with and distribute the ink upon said printing surface, thus insuring a relatively higher grade of work owing to the more uniform application of the ink to the printing surface.

The invention also contemplates the provision of means whereby certain parts may be adjusted to compensate for wear between them, and also a means whereby the parts may be efficiently lubricated and readily taken apart for repairs.

It is a further object of the invention to provide a structure whereby the distributing device may move relatively to its support so as to compensate for inequalities of the inking rollers with which it is associated and also to compensate for variations in contour or shape of the track upon which the distributor operates when in action.

The invention also contemplates various details of construction which cooperate with each other and lend themselves to produce a simple and effective construction.

The invention will be explained in detail and more thoroughly understood when read in conjunction with the accompanying drawings, in which—

Fig. 1 is a side elevation of a portion of a printing press showing the application of the invention thereto;

Fig. 2 is a plan view showing the inking and distributing rolls in cooperate relation to each other;

Fig. 3 is a sectional view of the ink distributing rolls showing the mechanism employed for accomplishing the invention; and

Fig. 4 is a detail side elevation of a bracket employed in conjunction with the ink distributing roll shown in Fig. 3.

The invention will be explained in conjunction with the well known platen press, in which the ink rollers travel from the platen over the type and back again to the platen. In this structure the inking rolls 10 and 11 are connected to the inking roll carriages 12 arranged upon opposite ends of said rollers.

The distributing roll and its support which form the basis of this application are respectively arranged between the inking rolls and secured to the inking roll carriages 12. The distributor roll includes a mechanism whereby it is caused to reciprocate with respect to the inking rolls and also to rotate with the same during its movement across the type and platen.

This distributor roll and associated mechanism are mounted upon the hollow shaft 13, the opposite ends of which are flattened and movably held in the brackets or supports 14—14 movably secured to the inking roll carriage. These brackets will be explained in detail hereinafter. The opposite ends of this shaft are each provided with a pin 15 which cooperates with the inking roll carriages and hold the shaft against lateral movement with respect thereto. This shaft has a tubular metallic roller 16 arranged thereon, it being supported at its opposite ends by closures 17—17ª. The closure 17 is provided with the external threads 18 which permit this closure to be threaded into the end of the tubular roller 16, and held with relation to the roller. This closure is also provided with the internally threaded portion 19, and is also provided with the lugs 20 and 21. The threaded portion of this closure cooperates with a threaded sleeve 22, which is arranged upon the shaft and causes the tubular member to reciprocate with relation to the shaft as said member rotates. The tubular shaft 13 has one end thereof threaded and provided with the adjusting and lock nuts 23 and 24, respectively. One of these nuts bears against one end of the threaded sleeve 22, and as the nut is adjusted along the shaft this sleeve is adjusted also. The opposite end of this sleeve is provided with the circumferential flange 23ª and is further provided with the diametrically disposed recess 24ª for the reception of the projections 25 provided upon the element 26 which forms one part of a friction clutch. This clutch also includes the friction material 27

and the element 28. This element 28 is provided with the tubular projection 29 which is slotted at 30 for the reception of the pin 31 which is driven through said shaft. A coiled expansion spring 32 abuts against the end of the element 28 and reacts between this element and the pin 33.

From the foregoing description it is evident that by adjusting the nuts 23, 24 upon the shaft the tension of this spring may be varied, so as to insure the proper frictional contact between the elements 26, 27 and 28, and also compensate for any wear between these parts. By utilizing a clutch composed of separable elements which have a connection with the threaded sleeve 22 such as above outlined, the faces of the clutch elements are always maintained in substantial parallel relation to each other regardless of any deflection of the shaft upon which they are mounted.

The threaded sleeve 22 is further provided with the projections 34 and 35, the projection 35 being arranged adjacent the innermost termination of the threads provided upon the sleeve and being provided to cocperate with the projection or lug 21 of the closure 17 when said end of the roller having said closure reaches this point in its travel along the shaft. This lug and projection cooperate and rotate the sleeve 22 when this end of the roller reaches its limit of travel in this direction, thus preventing breakage of the parts.

The projection 34 is arranged adjacent the outermost end of the threaded sleeve and cooperates with the projection 20 of the closure and is provided for the purpose above referred to when the reciprocable roller reaches its limit of movement in this direction. The clutch hereinbefore referred to permits of this relative rotation of the sleeve, yet under normal conditions prevents any relative rotation thereof, so that as the roller 16 is rotated through the medium of its contact with the inking rollers, it will be reciprocated along the shaft and with respect to the inking rollers, thereby spreading the ink evenly upon the inking rollers and resulting in accomplishing better work. This shaft is provided with means whereby the mechanism within the tubular roller may be readily lubricated without necessitating the disassociation of the parts. To accomplish this the tubular shaft is provided with an aperture 40 through which lubricant may be introduced which finds its way to the parts arranged upon said shaft.

The brackets or supports 14 are mounted upon the inking roll carriages 12 and are constructed to provide a means whereby the ink distributing roller may move relatively to the carriages and the inking rolls to compensate for various conditions such as herein before outlined. These brackets being identical in construction with each other the construction of one will suffice for an understanding of both.

These brackets 14 include the vertical portion 42 which forms a housing and the laterally projecting portions 43 and 44. These portions 43 and 44 are each provided with a slot 45 to accept the bushing 46 which is provided with a collar 47. This bushing is of a length which is somewhat greater than the thickness of the portions 43 and 44, and thus provides a slight clearance between the collar and said lateral projections, so that these brackets may move with relation to the inking roll carriage to which they are attached. A bolt 48 is passed through the bushing and threaded into the inking roll carriage, and by virtue of the fact that the bushing is of a greater length than the width of these projections, the bushing and the bracket may be movably but securely fastened to said carriage. The portion 42 is provided with a vertical slot 49 to accept one of the flattened ends of the tubular shaft 13. This portion is provided with a threaded aperture 50 for the reception of the threaded adjustable member 51 having the knurled finger piece 52. This member 51 is provided with a plunger 53 which has the reduced portion 54 upon which is arranged the coiled spring 55 which reacts between the shouldered portion of the plunger and the end of the adjustable element. The uppermost end or the reduced portion of the plunger is upset so as to prevent the separation of the plunger and the member 51. A winged set nut 56 is arranged upon the member 51, and is provided to lock the member 51 in adjusted position with relation to the bracket.

From the foregoing description it is evident that the bracket may move laterally with respect to the inking roll carriage and that the distributing roller may in addition move in a vertical direction to said carriage, and thus compensate for shrinkage and for other inequalities and conditions of the inking rollers, and the track over which the structure operates.

From the foregoing description it is evident that an arrangement of elements is employed whereby the various objects may be simply and efficiently accomplished. However various other arrangements may be resorted to without departing from the spirit of the invention as expressed in the appended claims forming a part hereof.

What I claim and desire to cover by Letters Patent is:

1. In a device of the class described, the combination of a shaft, a roller rotatably mounted upon the shaft, means for moving the roller axially relatively to the shaft, a friction clutch arranged upon the shaft, said clutch being separately connected to

one end of said means, resilient means for retaining the clutch elements in contact with each other and in connected relation to said first mentioned means, said shaft being threaded at one end, a threaded member provided upon said end and providing means for moving the first mentioned means relatively to the shaft.

2. In a device of the class described, the combination of a shaft, a roller rotatably mounted upon the shaft, means for moving the roller axially relatively to the shaft, a friction clutch arranged upon the shaft, said clutch being separately connected to one end of said means, resilient means for retaining the clutch elements in contact with each other and in connected relation to said first mentioned means, said shaft being threaded at one end, a threaded member provided upon said end and providing means for moving the first mentioned means relatively to the shaft and to vary the tension of said second mentioned means.

3. In a device of the class described, the combination of a shaft, a roller rotatably mounted upon the shaft, means for moving the roller axially relatively to the shaft, a friction clutch arranged upon the shaft and said clutch being separately connected to one end of said means, and means for retaining the clutch elements in contact with each other and in connected relation to said first mentioned means.

4. In a device of the class described, the combination of a shaft, a roller rotatably mounted upon the shaft, means for moving the roller axially relatively to the shaft, said means being adjustable relatively to the shaft, a friction clutch cooperatively connected with said means, and means for holding said means and clutch in adjusted position relatively to the shaft.

5. In a device of the character described the combination of a shaft, a roller mounted upon said shaft means for causing the reciprocation of the roller lengthwise of the shaft, a bracket whereby the roller and shaft may be mounted with respect to an inking roll carriage, said bracket including a spring pressed plunger which engages the shaft and a connection between the bracket and said carriage whereby the bracket may ride upon and move lengthwise of the carriage.

In witness whereof, I hereunto subscribe my name this 25th day of January A. D., 1921.

ARTHUR J. DAANE.