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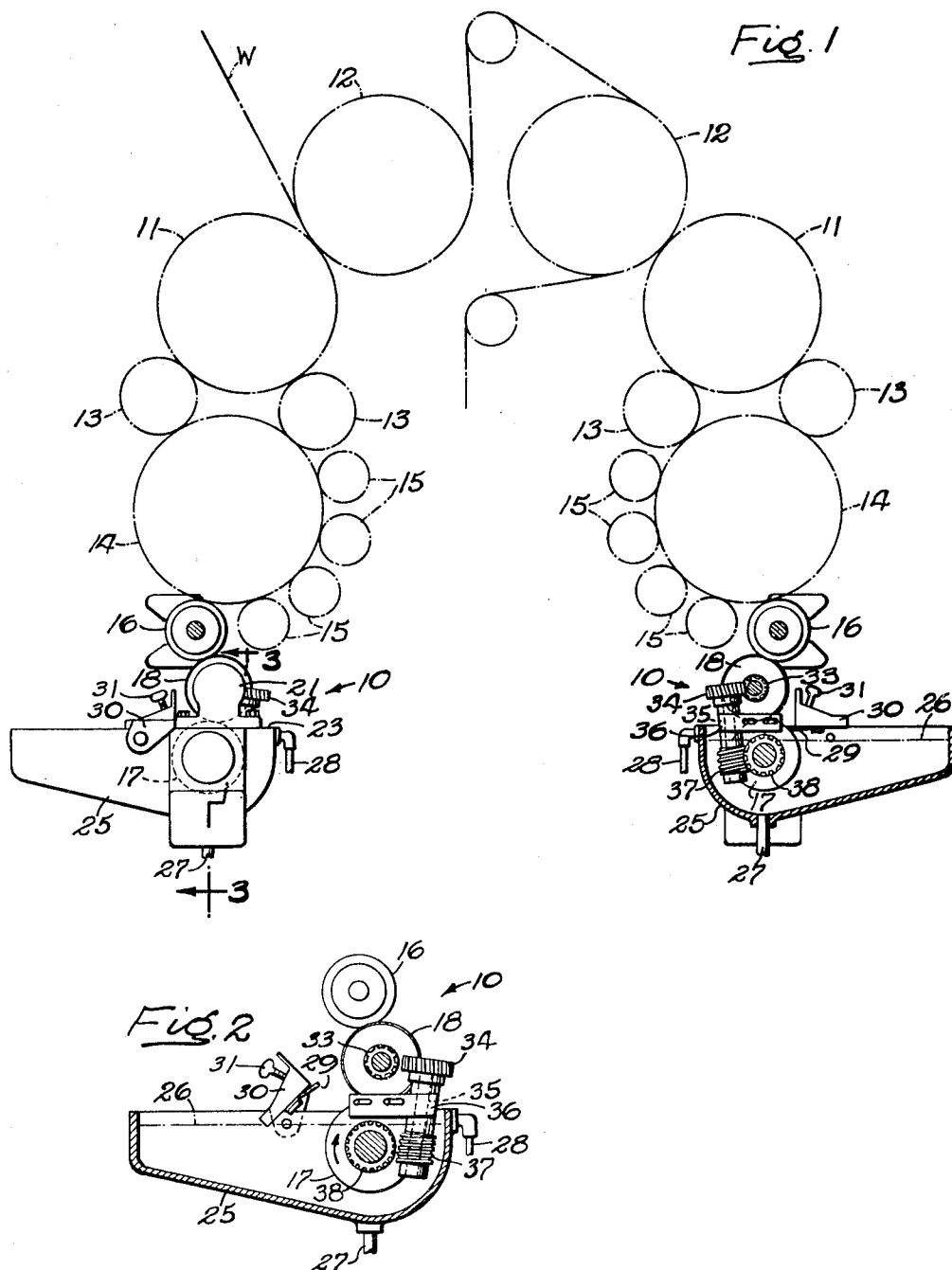
A. TAYLOR

2,585,598

PRINTING PRESS INK FOUNTAIN

Original Filed July 11, 1945

2 SHEETS--SHEET 1



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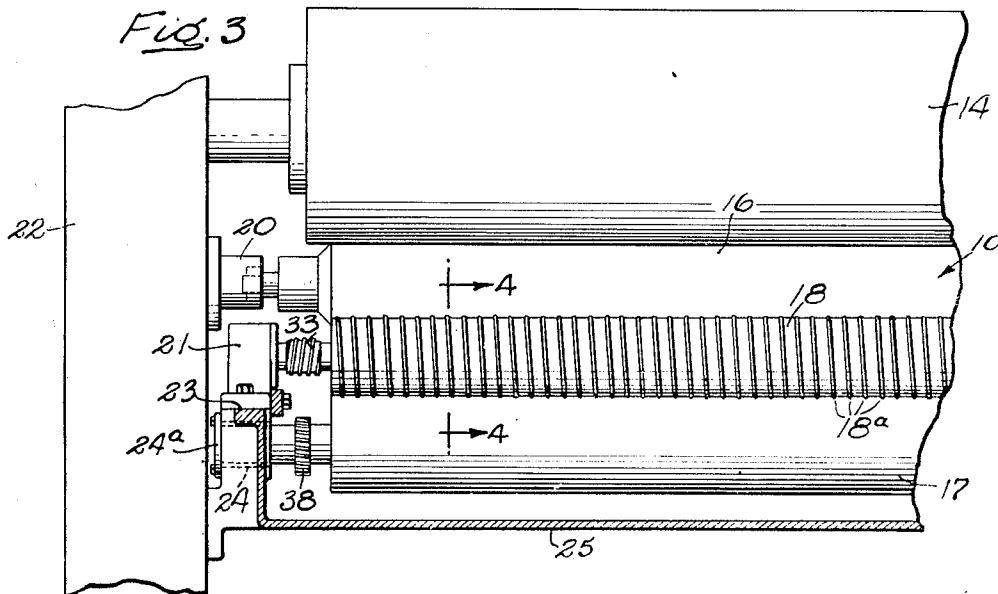
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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

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PRINTING PRESS INK FOUNTAIN

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Original application July 11, 1945, Serial No.
604,380. Divided and this application Novem-
ber 20, 1947, Serial No. 787,253

3 Claims. (Cl. 101—364)

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The present application is a division of my application Serial No. 604,380, filed July 11, 1945, on Continuous Feed Fountain, which application is abandoned.

The general object of the present invention is to provide a printing press ink fountain embodying a novel arrangement for preventing fountain leakage, particularly when employing water-base inks.

More particularly, it is an object to prevent ink leakage at the bearings for a fountain roller, while utilizing the ink itself as a lubricant for the bearings and the drive connection for the roller.

Further objects and advantages of the invention will become apparent as the following description proceeds, taken in connection with the accompanying drawings, in which:

Figure 1 is a diagrammatic layout of a standard perfecting type of printing unit equipped with fountains embodying the present invention.

Fig. 2 is a transverse sectional view through the left-hand fountain in Fig. 1 showing the same with the fountain roller drive disconnected and the regulating blade swung upward into inoperative position.

Fig. 3 is an enlarged fragmentary sectional view taken substantially along the line 3—3 in Fig. 1 and also showing an adjacent portion of the press side frame as well as the bearings for the various rollers included in the fountain.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

Referring more particularly to the exemplary embodiment of the invention illustrated in the drawings, a rotary printing press unit has been indicated diagrammatically and shown as equipped with a pair of fountains 10 embodying the present invention and which in this instance are of the continuous feed type. The press itself may take a variety of forms, that shown being merely indicative of one of the numerous types of presses in which my fountain may be employed. In the particular layout shown, a web W is threaded through a pair of printing couples comprising plate cylinders 11 and im-

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pression cylinders 12. Ink is applied to the plate cylinders 11 by suitable inking mechanisms, including in this instance form rollers 13, supplied from inking drums 14, each equipped with four coacting vibrating rollers 15. It is to the ink drums 14 that the fountains 10 supply ink. Since the two fountains are identical, a description of one will suffice for both.

Referring to the left-hand one of the fountains 10 in Fig. 1, by way of example, it will be seen that it includes a transfer roller 16 running in peripheral contact with the drum 14 (see also Fig. 3), and in this instance driven frictionally from the latter. In my copending application Serial No. 604,380 is described and claimed a novel arrangement for applying ink to the drum 14 via the transfer roller 16 in an evenly distributed film. It is not with such matters of distribution that the present invention is primarily concerned. Accordingly, suffice it to say that ink may be applied to the transfer roller by some suitable roller arrangement such as the spirally ribbed pick-up roller 18 taking ink from a fountain roller 17. It is with the sealing against ink leakage at the bearings for the fountain roller, here exemplified as 17, that the present invention is concerned.

The two rollers 16, 18 are journaled in suitable bearings 20, 21 as shown in Fig. 3. The transfer roller's bearings 20 may be mounted on the press side frames 22, while the pick-up roller's bearings 21 may be adjustably fixed to a pad 23 presented by the fountain end wall. By shifting the bearings 21 along such pads, the pick-up roller is moved bodily toward and from the transfer roller 16, thereby controlling the pressure of the pick-up roller against the transfer roller.

Ink is supplied to the pick-up roller ribbing 18 by the overshot type fountain roller 17 which is arranged for rotation upon a fixed axis running generally parallel to the axes of the rollers 16, 18. Pursuant to the present invention, the latter roller 17 is journaled in suitable bearings 24 to run partially submerged in a body of ink presented to it by a suitable pan or fountain body 25 supported by the press side frames. The normal level of ink is indicated at 26 in Fig. 2, such level being maintained by pumping ink into an inlet 27 from a suitable source (not shown) and bleeding off excess through an overflow 28. A regulating blade 29 of well-known form, carried by a pivoted bracket 30 and adjustable by screws 31, is arranged to regulate the thickness of the film of ink on the portion of the fountain roller rising from the body of ink and passing beneath the pick-up roller 18. The spacing between the

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fountain and the pick-up rollers is such that the ribbing 18^a of the latter will dip into the film on the fountain roller but at the same time will remain out of contact with the fountain roller.

To rotate the fountain roller 17, I utilize a double reduction worm and worm wheel type of speed reducing connection between the pick-up roller 18 and fountain roller 17. Thus, a worm 33 is fixed to the shaft of the pick-up roller 18 and meshed with a worm wheel 34 carried on the upper end of a stub shaft 35 journaled on a bracket 36. Fixed to the lower end of this stub shaft is a second worm 37 meshed with a worm wheel 38 on the shaft of the fountain roller 17.

By mounting the bracket 36 for adjustment transaxially of the rollers, the connections can be shifted from the meshed position indicated in Fig. 1 to the unmeshed position indicated in Fig. 2. Such provision is made in order to accommodate reversal of the press unit. When the press is reversed, the pick-up roller 18 will also reverse, but rotation of the fountain roller must remain unidirectional in view of the regulating blade 29. To afford rotation of the fountain roller 17 in the same direction when the pick-up roller 18 has to be reversed, a second drive connection (not shown) like that described above, except that it is disposed to effect an opposite rotation of its terminal elements, is located at the side of the press opposite that shown and may be shifted into meshing engagement when required.

It will be observed upon reference to Figs. 2 and 3 that the fountain roller 17 is low enough with reference to the ink level 26 that the bearings 24 for such roller are immersed in the ink. Moreover, the outer ends of the bearings are closed by housing caps 24^a. It is possible to utilize such bearings with completely closed outer ends since the drive connections 37, 38 are between the bearings and roller, being also immersed in the ink. With the bearings thus immersed, the ink itself serves as lubricant. Such an arrangement in which the fountain roller bearings are immersed in ink and sealed at their outer ends is especially useful when using water base inks. That is for the reason that if the bearing is open on the exterior, the thin water base ink will almost inevitably seep into the bearing and then become dried out. The dry ink abrades the bearings and very materially shortens their life. Any such difficulty is completely eliminated with the immersion arrangement shown. A stainless steel shaft running in a bronze sleeve bearing operates satisfactorily when so immersed in ink.

I claim as my invention:

1. In an ink fountain for a printing press, the combination comprising a housing susceptible of

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holding a body of ink and having upstanding end walls, an overshot fountain roller mounted within said housing in partially submerged relation with the body of ink, a fountain roller shaft, annular bearings in said housing end walls for supporting said shaft and said roller for rotation about a fixed axis, said bearings being disposed in open communication with the body of ink but sealed against communication with the exterior of said housing.

2. In a printing press ink fountain, the combination of a fountain pan having end walls and being adapted to receive a body of ink, a fountain roller, a fountain roller shaft, bearings in said end walls sealed at their outer ends but opening inwardly to the interior of said pan, said bearings being disposed in spaced apart relation with the opposite ends of said roller and being adapted to support said shaft for rotation upon a fixed axis, a drive element fixed to said roller shaft between one of said bearings and one end of said roller, means for applying a driving torque to said drive element from a point located above the level of the body of ink in said fountain pan, and means for maintaining said pan flooded with ink to a level sufficient to immerse said bearings.

3. In a printing press ink fountain, the combination of a fountain pan having end walls and being adapted to receive a body of ink, a fountain roller, a fountain roller shaft, sleeve type bearings in said end walls sealed at their outer ends but opening inwardly to the interior of said pan, said bearings being disposed in spaced apart relation with the opposite ends of said roller and being adapted to support said shaft for rotation upon a fixed axis, a drive element fixed to said roller shaft between one of said bearings and one end of said roller, means including a stub shaft and reduction gearing for applying a driving torque to said drive element from a point located above the level of the body of ink in said fountain pan.

AUBURN TAYLOR.

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