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3,060,852

INKING SYSTEM

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Fig. 1.

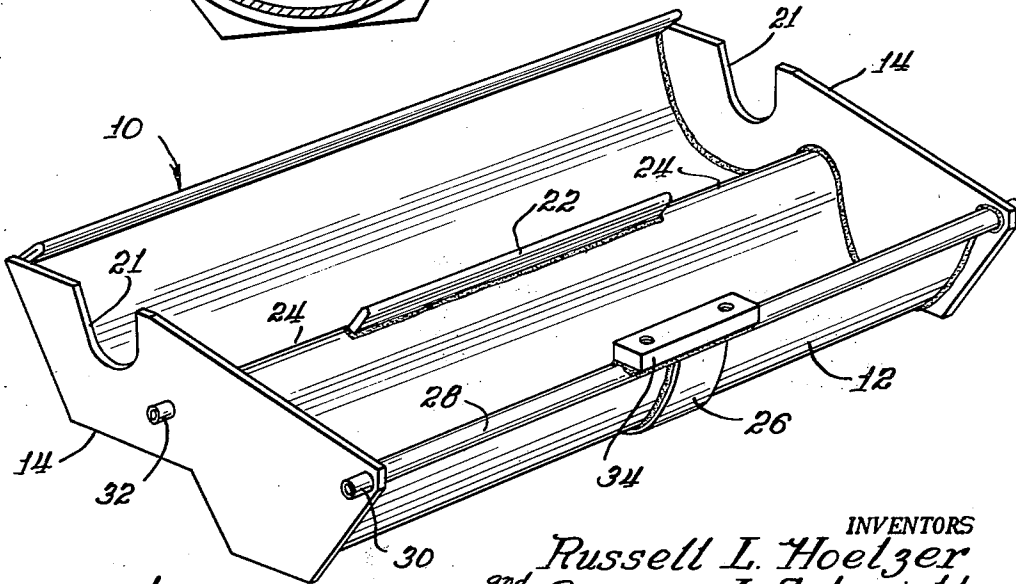
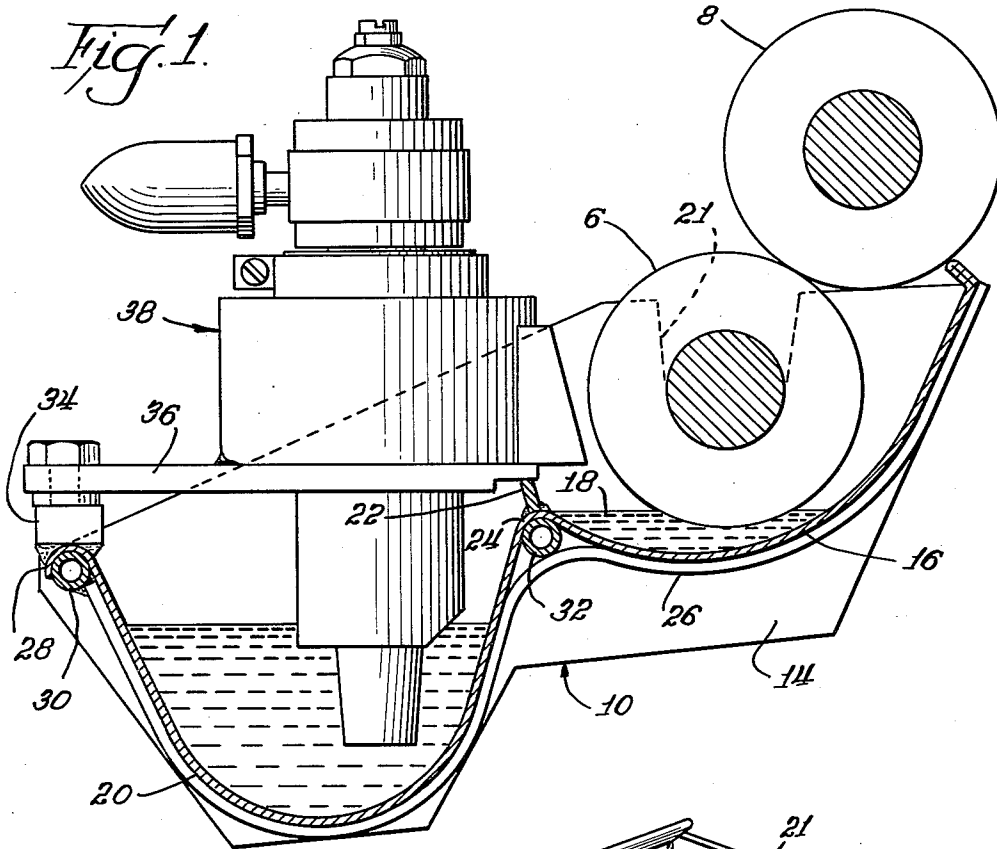


Fig. 2.

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3,060,852

INKING SYSTEM

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6 Claims. (Cl. 101-364)

This invention relates to an inking system for use on flexographic and gravure printing presses.

Inking systems generally used in the trade for circulating solvent type inks and coatings in the ink fountains of flexographic and gravure printing presses, utilize a single pan type fountain and a remote ink sump and pump with connecting hoses for circulating the ink between the sump and the fountain. In a typical four color press there are eight ink hoses draped over or around the press which must be removed and replaced each time a new job is set up, and four sumps and ink pumps setting on the floor adjacent to the press which are always "in the way." It can be appreciated that such an arrangement is difficult to clean, or "wash up" in the vernacular of the trade, is awkward to handle, involves high maintenance cost in hose replacement, and creates problems of ink contamination due to faulty cleaning of hoses, or decomposition of hoses by solvent attack. Good circulation of the ink is essential for attainment of uniform color and ink coating thickness, and overall high quality printing. Ink contamination results in rapid wear and deterioration of printing plates and cylinders, and not only adds to maintenance cost, but produces poor quality printing.

The inking system of the invention avoids the shortcomings of inking arrangements of the prior art. More particularly, it eliminates entirely the use of a remote ink sump and pump with connecting hoses for circulation of ink. Consequently, it avoids the problem of ink contamination caused by decomposition of hoses by solvent attack. It will be found that the inking system of the invention is generally less costly to install, and has lower maintenance costs as compared with inking systems in use. Furthermore, it provides good circulation of ink which is thoroughly mixed and continuously applied to the inking roll.

Our copending application Serial No. 36,864, filed June 17, 1960, discloses a pump which may be used in the inking system of the present invention. Briefly, the inking system disclosed herein comprises a one piece fountain and sump, and a centrifugal pump that lifts the ink from the lowest part of the sump and discharges it into the fountain at, or near the middle thereof. The ink moves outwardly toward both ends of the fountain so that the inking roll is constantly supplied with a fresh supply of ink throughout full length. The ink level in the fountain is maintained by a weir, or dam, over which the ink flows for return to the sump. The inking system of the invention requires less ink to fill the system as compared with inking systems heretofore in use. It will be apparent from the disclosure which follows, that the inking system of the invention provides a simple, compact, and superior solution to the problem of inking a roller in a printing press.

The main object of this invention is to provide an improved inking system for use in flexographic and gravure printing presses.

Another object of the invention is to provide an improved inking system for printing presses which avoids ink contamination, and which is less costly to install and maintain.

A more specific object is to provide an inking system for printing presses which eliminates the need for connecting hoses for ink circulation.

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Another object is to provide an inking system for printing presses wherein a thoroughly mixed, regulated quantity of ink is continuously fed to an inking roll.

Still another object of the invention is to provide an inking system for a printing press which requires less ink, and is simple, compact and superior to inking systems of prior art inking systems for printing presses.

These and further objects and features of the invention will become more apparent from the following description and accompanying drawing wherein:

FIG. 1 is a vertical section view of apparatus used in the inking system of the invention; and

FIG. 2 is a perspective-like illustration of a fountain and sump pan forming part of the apparatus of FIG. 1.

Referring now to the drawing, the numeral 6 identifies an inking roll which is arranged in engagement with a transfer roll 8, both rolls forming part of a printing press (not shown) for use in flexographic and gravure printing. A combination fountain and sump pan 10 is adapted for holding a given quantity of printing ink, which pan is formed of a single piece of sheet metal 12, to which, end or side wall pieces 14 have been affixed in water-tight manner, as by welding. The pan has two curved bottom, trough-like portions, the upper portion 16 serving as an ink fountain for maintaining a constant level of ink 18 in which the inking roll 6 is partially submerged, while the lower portion 20 of the pan serves as a sump. The sump is of such capacity as to provide a reservoir for a volume of ink as required for the size of press and nature of the printing job. A notch 21 is provided in each side wall for straddling the shaft of the inking roll 6. The fountain portion is in a higher horizontal position as compared to the sump portion.

Between the fountain and sump portions is a wall 22 arranged to maintain a desired level of ink in the fountain portion 16, the wall at each end being short of a respective side wall 14 so that a line of junction 24 of the pan portions 16, 20, serves as a weir, or dam, for metering the flow of ink to the sump portion. A band, or strap means 26 is secured to the bottom of the pan 10 at the mid-region for stiffening purposes, while the edge 28 of the sump portion is bent for engagement with a horizontal support bar 30, the ends of which are adapted to be held by the structure of the printing press. A second horizontal support bar 32 is arranged beneath the pan along the junction line 24, the ends of which are likewise adapted to be held by the structure of the printing press. In such manner, the pan 10 is removably supported in required position, as shown.

A block 34 is mounted upon the edge 28 at the mid-region thereof which is adapted to support at one end a bar, or platform 36, the other end of the platform resting upon the wall 22. Platform 36 is arranged to operatively support a pump 38 which is adapted to pump the ink from the sump portion 20 into the fountain portion 16. The pump 38, is of the centrifugal type, and details thereof are fully disclosed in our copending application Serial No. 36,864. It will be seen that the pump 38 lifts the ink from the sump portion 20 and discharges it into the mid-region of the fountain portion 16, from whence it flows toward each side wall 14, and eventually over the dam, by gravity back into the sump portion. In such manner, the inking roll 6 continuously receives a thoroughly mixed and regulated supply of ink.

It will be seen from the foregoing description, that the inking system of the invention will fully satisfy all of the objectives initially set forth. While the description of the invention has been given in detail, it is conceded that various changes may be made in the embodiment without departing from the spirit of the invention and accompanying claims.

What is claimed is:

1. In an inking system for printing presses a pan means for holding a given quantity of printing ink, said pan means including a fountain portion and a sump portion, said fountain portion being arranged to continuously receive a given supply of thoroughly mixed ink for application to an inking roll and to allow flow of excess ink to the sump portion, a weir means for metering flow of ink from the fountain portion to the sump portion, and means for pumping ink from the sump portion to the fountain portion.

2. In an inking system for printing presses, a pan means for holding a given quantity of printing ink, said pan means including a fountain portion and a sump portion integral therewith, said fountain portion being adapted for positioning in a higher horizontal position relative to the sump portion and being further arranged to receive a supply of thoroughly mixed ink for application to an inking roll and to allow flow of ink in excess of a predetermined level back into the sump portion, a weir means for metering flow of ink from the fountain portion of the sump portion, and means for pumping ink from the sump portion to the fountain portion.

3. In an inking system for printing presses, a pan means for holding a given quantity of printing ink, said pan means including a fountain portion and a sump portion integral therewith, side walls affixed in water-tight manner to the fountain and sump portions, a wall arranged between said portions and in spaced relation to each side wall to maintain a supply of ink in the fountain portion so that an inking roll may be partially submerged therein with the excess ink flowing by gravity into the sump portion, and means for pumping ink from the sump portion and delivering it to the mid-region of the fountain portion.

4. A pan means for use in an inking system for a printing press comprising, a single piece of sheet metal formed to provide two round bottom trough-like portions one

of which serves as a fountain portion the other serving as a sump portion, said fountain portion being adapted for positioning in a higher horizontal position relative to the sump portion, an end wall affixed in water-tight manner to each edge of said portions, a wall arranged between said portions and in spaced relation to said end walls to maintain ink in the fountain portion so that an inking roll may be partially submerged therein with the excess of ink flowing by gravity into the sump portion, and means to support a pump for pumping ink from the sump portion of the fountain portion.

5. A pan means for use in an inking system for a printing press comprising, a single piece of sheet metal formed to provide two round bottom trough-like portions one of which serves as a fountain portion the other serving as a sump portion, said fountain portion being adapted for positioning in a higher horizontal position relative to the sump portion, an end wall affixed in water-tight manner to each edge of said portions, a wall arranged between said portions at the junction line thereof, said wall being in equally spaced relation to each side wall to provide weirs at the junction line whereby a given level of ink is maintained in the fountain portion, and means to support a pump for pumping ink from the sump portion to the fountain portion.

6. A pan means for use in an inking system for a printing press according to claim 5, wherein the means to support a pump comprises a block which is secured to the sump portion at the mid-region thereof, and a platform extending between said block and said wall.

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**UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION**

Patent No. 3,060,852

October 30, 1962

Russell L. Hoelzer et al.

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 22, for "of" read -- to --.

Signed and sealed this 18th day of June 1963.

(SEAL)

Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents