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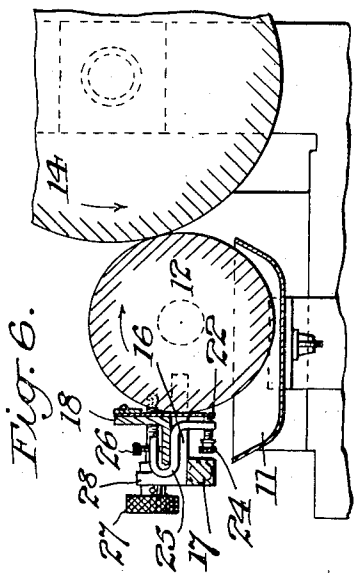
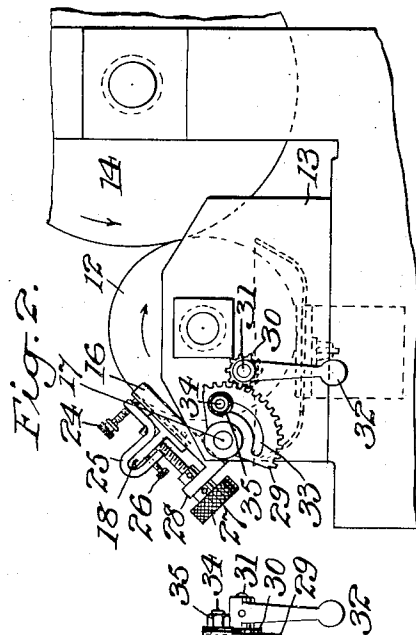
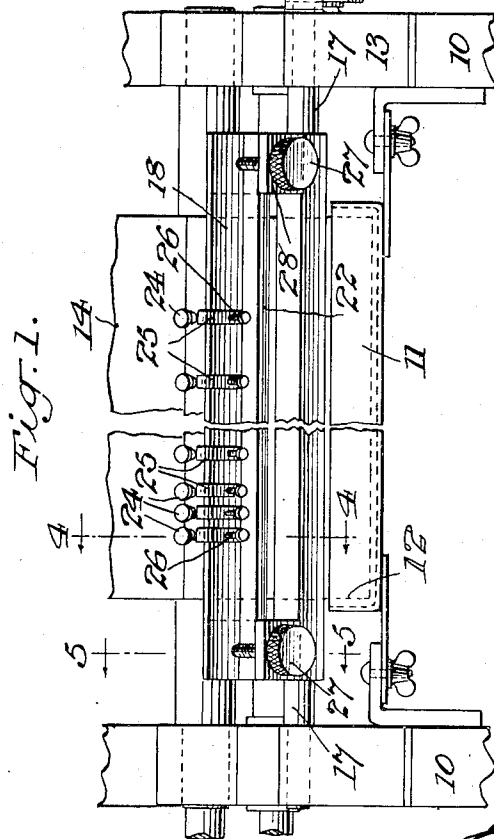
E. L. HARLEY

2,359,640

INKING MECHANISM FOR PRINTING PRESSES

Filed Feb. 20, 1942

2 Sheets-Sheet 1



INVENTOR.

BY *Carl L. Harley*
Howard
attorneys

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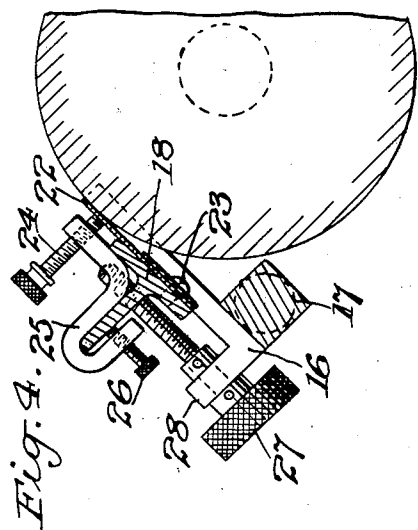
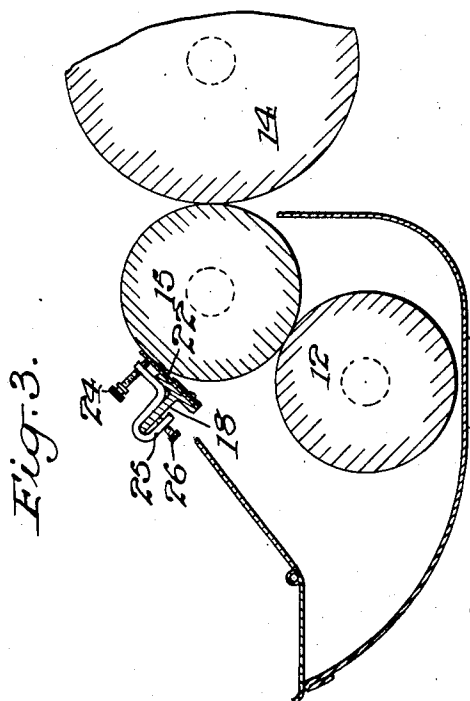
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INKING MECHANISM FOR PRINTING PRESSES

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2 Sheets-Sheet 2



INVENTOR.

BY *Charles L. Harley*
Attorneys

UNITED STATES PATENT OFFICE

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INKING MECHANISM FOR PRINTING PRESSES

Earle L. Harley, Brooklyn, N. Y., assignor to H. H. Heinrich, Inc., New York, N. Y., a corporation of New York

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7 Claims. (Cl. 101—365)

My invention is directed broadly to novel means for regulating the supply of liquids, such as inks, dyes, lacquers, adhesives, and the like, to predetermined points.

My invention is directed more particularly to means for accurately and efficiently regulating the deposit of ink in inking mechanisms using various kinds of inks for different types of printing presses.

My invention is also directed to a novel doctor unit for attachment to inking mechanisms, which doctor unit includes local doctor blade pressure adjusting devices which are independently positioned on a suitable support to properly group the devices according to variations in the printing impressions.

My invention is also directed to a doctor unit in which the doctor blade is carried by a cross member which is adjustable on a rocking support toward and away from an ink supply roll for positioning the doctor blade angularly with respect to the said roll.

My invention is also directed to a doctor unit in which the rocking support is adapted to be swung out of its operative position for gaining ready access to the ink supply roll for cleaning, replacement, etc., and is also adapted to be swung into its operative position and there adjusted to regulate the pressure of the doctor blade as a whole on the ink supply roll.

Practical embodiments of my invention are represented in the accompanying drawings applied to inking mechanisms for printing presses, in which

Fig. 1 represents a detail front elevation showing one embodiment of my doctor unit applied to the fountain roll of a mono roll inking mechanism;

Fig. 2 represents an end elevation of the same;

Fig. 3 represents a detail cross section showing the doctor unit applied to the transfer roll of a two roll inking mechanism;

Fig. 4 represents a detail cross section, on a larger scale, taken in the plane of the line 4—4 of Fig. 1;

Fig. 5 represents a detail cross section, on a larger scale, taken in the plane of the line 5—5 of Fig. 1; and

Fig. 6 represents a cross section on the same scale as Fig. 1, showing a modified form of doctor unit applied to the fountain roll of an inking mechanism.

The side frames of the press are denoted by 10, and the liquid supply fountain by 11, which fountain may be an ink fountain. The liquid supply

roll 12 is herein shown as an ink fountain roll which is rotatably mounted in the auxiliary side frames 13.

In the embodiments shown in Figs. 1, 2, 4, 5 and 6, the fountain roll 12 deposits the ink directly on the printing or form cylinder 14. In the form shown in Fig. 3, the fountain roll 12 is shown as depositing the ink onto the transfer roll 15 which in turn deposits the ink on the printing or form cylinder 14. The doctor unit shown in Figs. 1 to 5 inclusive is constructed, arranged, and operated as follows. A rocking support for the doctor blade is herein shown as comprising two connected end members 16 having trunnions 17 rotatably mounted in the auxiliary side frames 13.

A cross member 18 of any suitable form and cross section is slidably mounted on the rocking support, as, for instance, by providing the end members 16 with elongated slots 19 which slidably receive blocks 20 which are secured to the base of the cross member 18, as, by screws 21. A doctor blade 22 may be of any well known material or combination of materials, which doctor blade is secured to the base of the cross member 18 between the end members 16 of the rocking support as by screws 23.

The independently positioned local blade pressure adjusting devices are herein shown as screws 24 carried by holders 25 removably and slidably embracing the cross member 18. These screws 24 are so located that their inner ends press against the portion of the doctor blade 22 adjacent its free edge. Each of the holders 25 for these screws 24 may be slid along the cross member 18 to variably space the adjusting screws 24 along the doctor blade 22, or these holders may be removed from certain positions along the cross member and replaced at other positions instead of sliding the holders on the cross member, if so desired. The means for clamping the holders to the cross member 18 in their selected positions are shown as set screws 26.

The means for adjusting the cross member 18 along the rocking support toward and away from the ink supply roll are herein shown as adjusting screws 27 rotatably mounted in uprising arms 28 of the end members 16, and threaded through the cross member 18. The adjustment of this cross member serves to vary the angular position of the doctor blade 22 with respect to the ink supply roll in connection with which it is being used.

The means which I have shown for rotatably adjusting the rocking support to vary the pressure of the doctor blade as a whole on the ink

supply roller in connection with which it is used, may be as follows. A gear segment 29 is secured to the end of one of the trunnions 17, which segment meshes with a pinion 30 carried by a stud shaft 31 mounted in the adjacent auxiliary frame 13, which pinion may be rotated by a handle 32 to swing the segment 29 and thereby rock the support to its desired position. The means which I have shown for locking the rocking support in its adjusted position comprises an elongated slot 33 in the segment 29 concentric to the axis of the trunnions 17, through which slot a bolt 34 extends from the auxiliary side frame 13, said bolt being provided with a lock nut 35. When this lock nut 35 is loosened it will be seen that the rocking support together with the cross member and the doctor blade may be swung back out of its operative position, for gaining ready access to the ink supply roll in connection with which the doctor unit is being used, for facilitating the cleaning or replacement of the roll.

In Fig. 6, I have shown a modified form of doctor unit in which the doctor blade 22 is reversed with its free edge directed against the rotative movement of its coating ink supply roll 12 as distinguished from the other form of doctor unit in which the free edge of the blade 22 is directed with the rotative movement of the ink supply roll. In this form it will be noted that the cross member adjusting screws 27 are so positioned that they will adjust the doctor blade 22 flatwise toward and away from the ink supply roll as distinguished from the other form of doctor unit in which the doctor blade is adjusted edgewise toward and away from the ink supply roll. In both of these forms, however, the adjustment of the cross member changes the angular position of the doctor blade with respect to the ink supply roll.

While I have shown my new and improved doctor unit in connection with the inking mechanism of a printing press adapted to print with aniline or similar inks, it is to be understood that the said doctor unit may be used in connection with inking mechanisms using all kinds of inks and with all types of printing presses. It is also to be understood that my new and improved doctor unit may be used in connection with liquid supply mechanisms using all kinds of liquids, such as inks, dyes, lacquers, adhesives, and the like.

It will be seen that I have provided a doctor unit which is well adapted for various types of presses, inking mechanisms, and inks, and in which the inks can be efficiently regulated on the printing cylinders for a wide range of printing impressions.

It will also be seen that by the provision of the independently positioned local blade pressure devices I am enabled to obtain clean printing for light or heavy work ranging from fine type printing where small amounts of ink are required, to solids where much greater amounts of ink are required. This result can be obtained even where fine type portions are arranged next to solids.

While I have shown my doctor unit as located for coaction with the fountain roll 12 in the mono roll arrangement shown in Figs. 1, 2, 4, 5 and 6 and with the transfer roll 15 in the two roll arrangement shown in Fig. 3, it is to be

understood that I may use the doctor unit in connection with the fountain roll 12 when the roll is a design printing roll as in intaglio printing presses, hence I do not wish to limit myself to the particular embodiments herein shown and described, but what I claim is:

1. A liquid supply roll, its doctor blade, a support therefor, means for moving the support to adjust the doctor blade edgewise to different angular positions with respect to the roll, means for adjusting the blade as a whole to increase or decrease its pressure on the roll, and local blade pressure adjusting devices independently slidable on the support to selected positions along the blade and means for securing the devices in their selected positions.

2. A liquid supply roll, a cross member, a rocking support therefor, a doctor blade carried by the cross member, local blade pressure adjusting devices independently positioned on the cross member, means for rotatively adjusting the rocking support to adjust the pressure of the blade as a whole on the roll, and additional means for moving the cross member on the support to adjust the position of the doctor blade with respect to the roll.

3. A liquid supply roll, a cross member, a doctor blade carried thereby, local blade pressure adjusting screws, holders therefor independently positioned on the cross member at greater or lesser distances apart, and set screws carried by the holders and engaging the cross member for securing the holders in their positions on the cross member.

4. A liquid supply roll, a cross member, a doctor blade carried thereby, local blade pressure adjusting screws, holders therefor independently adjustable along the cross member for positioning the screws along the doctor blade, and means for securing the holders to the cross member in their adjusted positions.

5. A liquid supply roll, a rocking support, a cross member slidably mounted thereon, a doctor blade carried by the cross member, local blade pressure adjusting screws independently adjustable along the cross member, and means for moving the cross member on the support to adjust the position of the doctor blade with respect to the roll.

6. A liquid supply roll, a stationary frame, a rocking support, a cross member slidably mounted thereon, a doctor blade carried by the cross member, local blade pressure adjusting screws independently adjustable along the cross member, and means on the stationary frame for adjusting the rotative position of the rocking support and thereby the pressure of the doctor blade on the roll.

7. A liquid supply roll, a stationary frame, a rocking support, a cross member slidably mounted thereon, a doctor blade carried by the cross member, local blade pressure adjusting screws independently adjustable along the cross member, means for adjusting the position of the cross member on the rocking support and thereby the position of the doctor blade with respect to the roll, and means on the stationary frame for adjusting the rotative position of the rocking support and thereby the pressure of the doctor blade as a whole on the roll.

EARLE L. HARLEY.