UNITED STATES PATENT OFFICE.

JOHN J. HALLIWELL, OF NEW YORK, N. Y., ASSIGNOR, BY MESSRS ASSIGNMENTS, TO
R. HUE AND CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

INK-ROLL-OPERATING MECHANISM FOR PRINTING-MACHINES.


To all whom it may concern:

Be it known that I, JOHN J. HALLIWELL, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Ink-Roll-Operating Mechanism for Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to improvements in inking mechanism for printing machines.

Rotary printing machines employ form rollers between what is known as the ink distributing cylinder and the form cylinder, the upper form roller or form rollers being arranged above the axis of the form cylinder or contact with the lower form roller or rollers below the axis of the form cylinder. These form rollers, as a rule, are made of composition, and it is customary, when the machine is stopped, to swing the form rollers out of contact with both the distributing cylinder and the form carrier in order to avoid flattening the rolls, and, also, where the printing cylinder carries a planographic plate, to avoid staining the plate.

The present invention has for one of its objects to produce an improved mechanism for swinging the form rollers simultaneously out of contact with the form cylinder and the ink distributing cylinder, the mechanism employed being of such a character that the weight of the lower form roller or rollers is utilized to assist in moving the upper roller or rollers.

A further object of the invention is to produce an improved mechanism for moving the upper and lower form rollers of an inking mechanism out of contact with the distributing and form cylinders, the construction being of such a character that the form rollers may be held in contact with the form cylinder, be moved sufficiently far from the cylinder to allow of ready access to and removal of the rolls, or may occupy an intermediate position in which the rolls are out of contact with the form and distributing cylinders.

With these and other objects not specifically referred to in view, the invention consists in certain constructions and in certain parts, improvements and combinations as will be hereinafter fully described and then specifically pointed out.

Referring to the accompanying drawings: Figure 1 is a side elevation of so much of an inking and printing mechanism as is necessary to an understanding of the invention. Fig. 2 is a view similar to Fig. 1, illustrating the parts in a different position. Fig. 3 is a view similar to Fig. 1 illustrating the parts in a still different position. Fig. 4 is a front elevation of the construction shown in Fig. 1 with the type cylinder removed.

Referring to the drawings which illustrate one embodiment of the invention, 1 indicates a form carrier mounted on a shaft 2, this shaft being supported as usual in bearings in the frame. The inking mechanism includes the usual ink distributing cylinder 3 mounted on a shaft 4, this cylinder being driven from a gear on the shaft 2 through an intermediate, this intermediate meshing with a gear on the shaft 4, as in dotted lines in Figs. 1, 2 and 3 of the drawings. Constructions embodying the invention will include an operating member by which the various movements of the form rollers are effected. In the particular construction illustrated the operating member comprises a shaft 8 extending across the machine and suitably supported in bearings in the frame. In the particular machine shown, two form rollers are employed, an upper roll 9 and a lower roll 10. The upper roll is mounted on a shaft 11 supported in bearings 12 one of which is indicated in dotted lines in Fig. 1, these bearings being of the type known as closed bearings and resting on blocks 13 in the frame. The lower form roller 10, in the particular construction illustrated, is mounted on a shaft 14 supported in bearings 15 secured to roll carrying arms 16 fast on the shaft 8, there being one of these arms on each side of the machine. The arms 16 are so disposed with respect to the shaft 8 that the weight of the arms and the roll tends to and does cause the shaft to rock unless the movement of the shaft is prevented. The construction is such that these arms 16, when in their uppermost position, hold the form roller 10 against the form carrier, the arms being retained in their uppermost position by suitable devices. While these retaining devices may be varied in character, as shown, the arms are provided with bosses 17 having perforations 18 therein, the side frames be...
ing provided with perforations 19 which register with the perforations 18 when the form rollers are in operative position with respect to the form cylinder. T-bolts, as 20, are passed through these perforations, thus locking the form roller in operative position.

Suitable connections are provided by which the movement of the shaft 8 effects the movement of the upper form roller 9. While these connections may be varied, the shaft 8, in the construction shown, is provided with arms 21 connected by links 22 to lifter arms 23 pivoted on the underside of the arms. These arms have recesses which engage the ends of the shaft 11. It will be seen that, through these connections, as the shaft 8 moves, the rolls 9 and 10 will be moved simultaneously toward or away from the form carrier, according to the direction of movement of the shaft. It will be further observed that the arms 16 are considerably longer than the arms 21, so that the turning movement of the arms 16 and the roll 10 is greater than the turning moment of the arms 21, the links and lifter arms 23. When, therefore, the shaft 8 is rocked to move the rolls out of contact with the form carrier the weight of the roll 10 and arms 16 assists in lifting the roll 9. The shaft 8 may be provided with suitable operating means, such as a handle 24.

Inking mechanism of this character should be constructed so that the form rollers may be moved from their position in contact with the form carrier to a position where they may be readily removed from the inking mechanism. It is further desirable that the construction be such that the form rollers may be moved out of contact with the form carrier without being moved into their removing position. In the particular machine shown, means are provided for positioning the rolls intermediate the contact position and the roll removing position. While these means may be varied, as shown, the shaft 8 is provided with a projection 25 so arranged as to engage with a removable pin 26 socketed in the frame when the shaft and roll actuating devices are so positioned that the rolls are out of contact with the form carrier though not in removing position, the position referred to being illustrated in Fig. 2.

The position the parts occupy when the rolls are in position to be removed from the inking mechanism is illustrated in Fig. 3. In the particular machine shown, there is provided a roll rest which supports one end of the shaft of the lower roll 10 when this roll is in roll removing position. While the construction of this rest may be varied, in the construction shown, it comprises a bent piece 27 one end of which embraces the shaft 8, the other end being supported by a rod 28 extending across the machine. To prevent excessive movement of the parts a pawl, as 29, may be provided so positioned as to engage the projection 25 when the parts are in roll removing position. For convenience in operating, the shaft may be provided with a second projection, as 30, with which the same pawl engages when the rolls are in contact position, the engagement of the pawl with this projection serving to hold the parts while the T-bolts 20 are being inserted. When the parts are to be moved from the position illustrated in Fig. 1 to that illustrated in Fig. 2, this pawl 29 will, as shown in Fig. 2, be turned so as to be disengaged from the projection 30.

Changes and variations may be made in the construction by which the invention is carried into effect. The invention is not, therefore, to be confined to the particular construction herein described and illustrated in the accompanying drawings.

What is claimed is:—

1. In an inking mechanism, the combination with a rotary form carrier, of upper and lower form rolls, a cooperating roll from which said form rolls derive their ink, an operating member, connections between the member and the form rolls whereby as the member is moved the form rolls move into contact with the form carrier or out of contact therewith and with their cooperating roll and to a position where the form rolls may be removed from the mechanism, and means for locking the member in a position intermediate these positions.

2. In an inking mechanism, the combination with a rotary form carrier, of upper and lower form rolls, a cooperating roll from which said rolls derive their ink, an operating member, connections between the member and the form rolls whereby as the member moves the rolls move into contact with the form carrier and cooperating roll and may be removed from the mechanism, rolling moving connections between the member and the other form roll, and means for locking the member in a position intermediate the contact position of the rolls and the roll removing position.

3. In an inking mechanism, the combination with a rotary form carrier, of upper and lower form rolls, an operating member, connections between the member and the rolls whereby as the member is moved the rolls move into contact with the form carrier and out of contact therewith to a position where the rolls may be removed from the mechanism, means for locking the member in a position intermediate these positions, and a roll rest for supporting the lower roll when it is in roll removing position.
4. In an inking mechanism, the combination with a rotary form carrier, of upper and lower form rolls, a shaft, connections between the shaft and the upper form roll, arms on the shaft, the lower form roll being supported in the arms, the arms being so disposed with respect to the shaft that they and the roll tend to move it from the contact position of the lower roll into a position where the roll may be removed from the mechanism, and means for locking the shaft in a position intermediate these positions.

5. In an inking mechanism, the combination with a rotary form carrier, of upper and lower form rolls, a shaft, connections between the shaft and the upper form roll, arms on the shaft, the lower form roll being supported in the arms, the arms being so disposed with respect to the shaft that they and the roll tend to move it from the contact position of the lower roll into a position where the roll may be removed from the mechanism, and means for locking the shaft in a position intermediate said positions, and a roll rest for supporting the roll when the shaft is in roll removing position.

6. In an inking mechanism, the combination with a rotary form carrier, of upper and lower form rolls, a shaft, upper roll actuating arms on the shaft, connections between these arms and the upper roll, and lower roll carrying arms, said arms being so disposed with respect to the shaft that the roll and arms tend to turn the shaft, said lower roll carrying arms being longer than the upper roll actuating arms.

7. In an inking mechanism, the combination with a rotary form carrier, of upper and lower form rolls, a shaft, upper roll actuating arms on the shaft, lower roll carrying arms on the shaft, said arms and roll being so disposed that they tend to turn the shaft from contact position of the roll into a position where the roll may be removed from the mechanism, and means for locking the shaft in a position intermediate these two positions.

8. In an inking mechanism, the combination with a rotary form carrier, of upper and lower form rolls, a shaft, upper roll actuating arms on the shaft, lower roll carrying arms on the shaft, said arms and lower roll being so disposed that they tend to turn the shaft from contact position of said roll into a position where the roll may be removed from the mechanism, means for locking the shaft in a position intermediate these two positions, and a roll rest for supporting the lower roll when it is in roll removing position.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

JOHN J. HALLIWELL.

Witnesses:

F. W. H. CRANE,
Geo. N. WILLIAMSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."

8