

(No Model.)

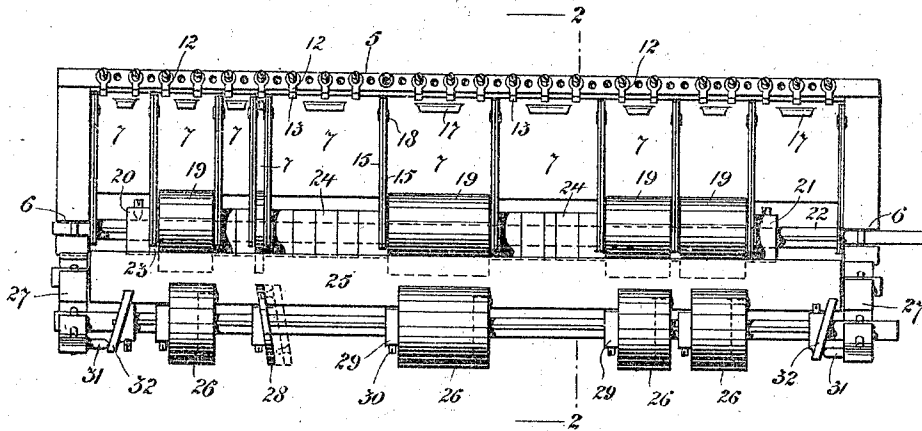
J. McCALLUM.

INKING MECHANISM FOR PRINTING PRESSES.

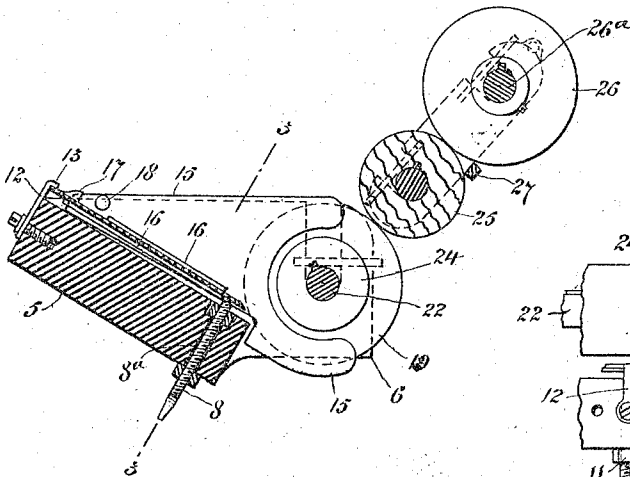
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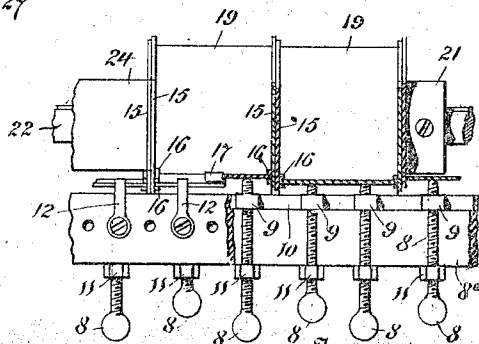
—Fig. 1—



—Fig. 2—



—Fig. 3—



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INKING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 580,326, dated April 6, 1897.

Application filed October 28, 1895. Serial No. 567,140. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH McCALLUM, of the city of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in the Inking Mechanism of Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates particularly to that class of inking mechanism consisting of an ink-fountain, a fountain-roll in close proximity thereto, and suitable form-inking rolls consisting of a form-roll and a distributing-roll, the former, the form-roll, adapted to receive the ink from the fountain-roll and distribute it over the types, and the latter, the distributing-roll, adapted to grind and distribute the ink evenly over the form-roll.

In cases where it has been required to print in various colors—as, for instance, in printing matter for advertising purposes, where it may be required to print, say, the top line in blue, the next in red, the next in green, the next in yellow, and the next in black, and perhaps other lines in many shades—it has been necessary heretofore to set the types of each matter to be printed in a different color or shade to the remainder in independent forms, thus necessitating a separate impression for each of such colors and shades. The object of my invention is to obviate this difficulty and enable by a single impression to print as many different colors and shades as can possibly be at any time required and with the use of but a single form.

To that end my invention may be said, briefly, to consist, first, in constructing the fountain in separable and preferably independently-adjustable sections, and also in forming the fountain-roll and, if desired, the distributing-roll, of independent rolls or sections, and, secondly, in a special arrangement to divide such independent rolls from one another.

For full comprehension, however, of my invention reference must be had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of a preferable embodiment of my invention; Fig. 2, an enlarged transverse vertical sectional view thereof, taken on line 2 2, Fig. 1; Fig. 3, a rear elevation thereof, partly in section, the view of the

portion in section being taken on line 3 3, Fig. 2.

I illustrate my improved inking mechanism without its carrying and operating parts, as they form no part of my invention and may be of ordinary and well-known construction, as my improved inking mechanism is applicable to all kinds of printing-presses.

The fountain is preferably formed of the usual base-plate 5, carrying bearings 6 6 for the shaft of the fountain-roller, but that portion known as the “knife”—i. e., the portion forming the bottom or floor of the ink-chamber—instead of being, as heretofore, made in one piece is made up of a number of independent sections 7, each resting at its rear end (through dividing-walls to be hereinafter described) upon the base-plate 5 and at its forward end upon one or more adjusting-screws 8. These adjusting-screws are adjustable laterally in a slot 8^a, extending the full length of the base-plate, and each screw is supported in a separate block 9, adapted to slide in a groove 10 in the upper face of plate 5 and be set at any desired point along the groove by means of jam-nuts 11.

A number of narrow retaining-plates 12, having one end bent to form a lip 13, are secured by screws to the rear edge of plate 5 in order that the lip of each may overlap the rear edge of one of the knife-sections, and thus retain it against rearward or vertical displacement. Each of these knife-sections supports on either side a partition or dividing-wall 15, which projects forward sufficiently to partially encircle a shaft 22, carried in the bearings 6 6. These partitions are flat on one side and provided on the other side and near the lower edge thereof with a pair of strips 16, set in close proximity to each other in order to receive the side edges of the knife-sections tightly between them. An upward projection 17 on the upper face near the rear end of each of such knife-sections serves to facilitate their withdrawal. These partitions are preferably arranged in pairs, with their flat sides in contact and pivotally joined together by a rivet 18 near their rear ends.

The ink-receiving rolls—i. e., the rolls that receive the ink from the fountains and distribute it over the form—preferably consist of a fountain-roll which receives the ink di-

rectly from the fountains, a form-roll which receives the ink from the fountain-roll and distributes same over the types carried by the form, and a reciprocating distributing-roll constructed and adapted to rotate and reciprocate in contact with said form-roll and thereby distribute the ink evenly over the surface of same. The fountain-roll is also made up of sections 19, each consisting of an independent roll and preferably of collar form, which are set upon the shaft 22, one of such independent rolls immediately in line with and in close proximity to each fountain-section and of equal width thereto. These two parts, the fountain and the fountain-roll, (which are made in the form of a sectional fountain and a sectional fountain-roll,) are adapted to feed five different colors in the following manner:

The shaft 22 is first removed from its bearings 6 6, and either of the retaining-collars 20 and 21, say the one 20, is set at the required distance from its end of the shaft. A spacing-washer 23, equal in thickness to a pair of dividing-walls 15, is then placed next to such collar, and then a pair of partitions or dividing-walls 15 are set in place, the forward ends of such walls, as before mentioned, partly encircling such washer 23. A fountain-roll section 19 of a width corresponding to the depth of the top line of types contained in the form is then placed upon the shaft next to and tightly against such washer, and a second washer and wall placed next to such fountain-roll section. A knife-section corresponding in width to the fountain-roll section is then slid into the grooves formed by the strips 16 on the sides of the walls, and one or more of the retaining-plates 12 set in place. Sufficient spacing-washers 24 are then placed on the shaft next to such latter washer and wall to establish a space equal to that between the top line of types and the one next below it in the form, and so on until an independent fountain and fountain-roll section is provided for every line of types carried by the form.

The fountain-roll sections and spacing-washers are held firmly together by the second retaining-collar 21 and are caused to rotate with the shaft through a feather-and-groove connection, the spaces between the fountains being maintained by inserting knife-sections between them.

The composition form-roll 25, reciprocating distributing-roll 26, and their carrying-frame 27 may be of ordinary and well-known construction; but I prefer to construct the distributing-roll in sections and to cause it to reciprocate once in every revolution. These sections are similar to the feed-roll sections, excepting that instead of their being separated by a wall I make them as much less in width as the distance the distributing-roll reciprocates, say, one-fourth of an inch, thus providing a one-fourth inch space between such distributing-roll sections and prevent-

ing the different-colored inks carried thereby mingling, and at the same time through their reciprocation the distributing-roll sections will distribute ink only over a space equal in width to their corresponding fountain roll sections.

When it is desirable to distribute ink over a narrower space (say one-eighth of an inch) than that taken up by the reciprocation of the roll, it will be necessary to provide a section which will be equal in width to the space to be inked, but set at an angle to the plane of rotation equal to the reciprocation of such section, as 28, Fig. 1, while the distributing-surface thereof will of course be parallel to the axis thereof, thus counteracting such reciprocation and causing the section to distribute ink in a straight line of the same width as the surface of such section. These distributing-roll sections are mounted upon a shaft 26* and caused to rotate with it by a feather-and-groove connection and may be spaced, if desired, by spacing-washers, similar to those, 24, of the fountain-roll; but I prefer to form a hub 29 on one side of each of such rolls, through which they can be secured against displacement by means of set-screws 30 after having been set at any desired point along the shaft. The opposite side of such roll to that having the hub thereon is recessed, as shown in dotted lines in Fig. 1, in order to enable the surface of one section to be set tightly against the surface of the other, which will be necessary when it is desired to mingle or blend all the different colors.

If it is desired to blend only, say, two of the colors, it will be necessary to loosen the retaining-screw of the section coinciding with one of such colors and shift such section along the shaft until it will during its reciprocation overlap the color with which it is to be mingled, which must necessarily be the one next to it.

The means that I prefer to use to impart a reciprocal movement every revolution to the distributing-roll consists of pins 31 31, projecting laterally from the carrier-frame 27 at a point close to each bearing for such roll, and I set a beveled end section 32 rigidly on each end of the shaft of such roll, as shown, in order that by the rotation of the roll the alternate action of the stationary pins 31 31 upon the rotating beveled surfaces of sections 32 32 will automatically impart the required reciprocal movement.

As the means for imparting the necessary operation, other than that already described, to the rolls and their carrying parts form no part of my invention, it will not be necessary to further allude thereto.

The adjustment of the knives to regulate the flow of ink from the fountains to the fountain-roll sections is effected by the adjusting-screws 8, through which the knife of each fountain can be independently adjusted.

There will of course be a reserve supply of

knives, independent fountain-rolls, and independent distributing-rolls of all widths from that equal to the height of the smallest possible line of types to the greatest width that can be supplied with ink from the fountain, and the roll-sections set at an angle may be increased in width, as shown in dotted lines in Fig. 1, by securing a number of roll-sections, according to width of interior surface required, to a main roll-section, which is provided with a hub through which it may be secured to the shaft, or such main roll-section may be removed and exchanged for another roll-section of the required width.

The various arrangements, combinations of parts, and the construction of such parts themselves can be materially changed without departing from the spirit of my invention.

What I claim is as follows:

1. In inking mechanism for printing-presses, a reciprocating distributing-roll set at an angle to a plane passing at right angles through the axis of rotation thereof, and means for reciprocating such roll, for the purpose set forth.

2. In inking mechanism for printing-presses, a reciprocating distributing-roll set at an angle to a plane passing at right angles through the axis of rotation thereof, said angle of the roll being equal to the angle of the cam which reciprocates said roll and the ink-distributing surface of such roll being parallel to the axis thereof and a cam for reciprocating such roll, for the purpose set forth.

3. In inking mechanism for printing-presses, an ink-receiving roll carried in close proximity to a series of fountains each composed of a pair of dividing-walls located one on each side of and connected to a vertically-adjustable knife-section, the side walls of each fountain being independent of the side walls of the fountain adjacent thereto, such series of fountains being carried by a common frame.

4. In inking mechanism for printing-presses, an ink-receiving roll carried in close proximity to a series of fountains each composed of a pair of dividing-walls located one on each side of and detachably connected to a vertically-adjustable knife-section, such series of fountains being carried by a common frame.

5. In inking mechanism for printing-presses, an ink-receiving roll carried in close proximity to a series of fountains each composed of a pair of dividing-walls located one on each side of and detachably connected to a vertically-adjustable removable knife-section, such series of fountains being carried by a common frame.

6. In inking mechanism for printing-presses, an ink-receiving roll made up of a series of independent collar-sections adapted to take over and be adjustably secured to a shaft carried in close proximity to a series of fountains each composed of a pair of dividing-walls located one on each side of and detachably connected to a vertically-adjustable removable

knife-section, such series of fountains being carried by a common frame.

7. Inking mechanism, for printing-presses, consisting of a series of independently-adjustable ink-fountains, each fountain being formed of a pair of side walls provided with a guideway formed in the adjacent side of each, and a knife-section carried in said guideways, said walls being adapted to rest at their rear ends, upon a base-plate and at their forward ends upon said knife-section, and such forward end partially encircling a shaft carried adjacent to the forward ends of said fountain-sections; a fountain-roll, means for regulating the flow of ink from the fountains, a form-roll, and a distributing-roll carried removably by an independent frame, the form-roll being adapted to receive the various-colored inks from the fountain-roll, and the distributing-roll being adapted to bear upon said form-roll, for the purpose set forth.

8. Inking mechanism for printing-presses, consisting of a series of independently-adjustable ink-fountains, each fountain being formed of a pair of side walls, and a knife-section connected to said walls, said walls being adapted to be supported at their rear ends by a base-plate and at their forward ends by one or more vertically-adjustable screws carried by blocks adjustable along a groove in said base-plate near the forward end of said knife-sections, and said screws being adapted to bear upon said fountains and thereby support said fountain-sections; a fountain-roll, a form-roll and a distributing-roll carried removably by an independent frame, the form-roll being adapted to receive the various-colored inks from the fountain-roll, and the distributing-roll being adapted to bear upon said form-roll, for the purpose set forth.

9. Inking mechanism for printing-presses, consisting of a series of independently-adjustable ink-fountains, each fountain being formed of a pair of side walls and a knife-section carried between said walls, said walls being adapted to be supported at their rear ends by a base-plate and at their forward ends by said knife-section, and such forward end partially encircling a shaft carried adjacent to the forward ends of said fountain-sections; one or more vertically and horizontally adjustable screws carried by said base-plate near the forward end of and adapted to bear upon said knife-section and thereby support said fountain-sections; a fountain-roll; a form-roll and a distributing-roll carried removably by an independent frame, the form-roll being adapted to receive the various-colored inks from the fountain-roll, and the distributing-roll being adapted to bear upon said form-roll, for the purpose set forth.

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