July 21, 1953 C. C. GREDE 2,645,997

VIBRATOR UNIT FOR MULTICOLOR PRINTING PRESSES

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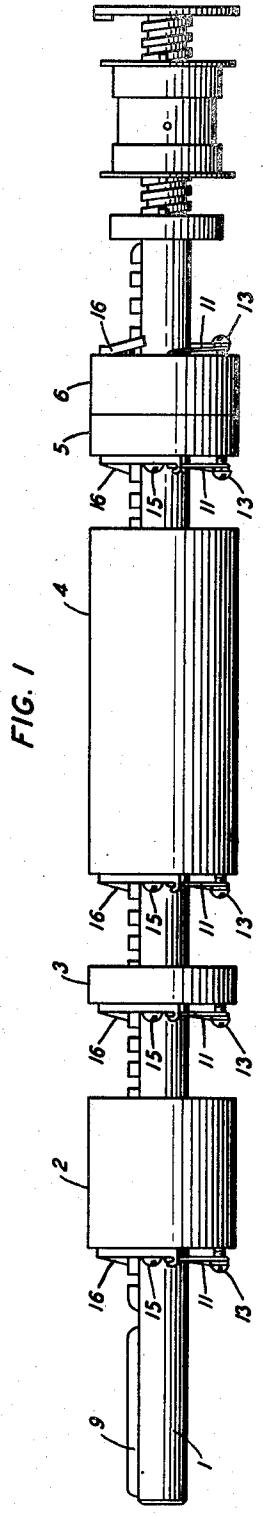


FIG. 1

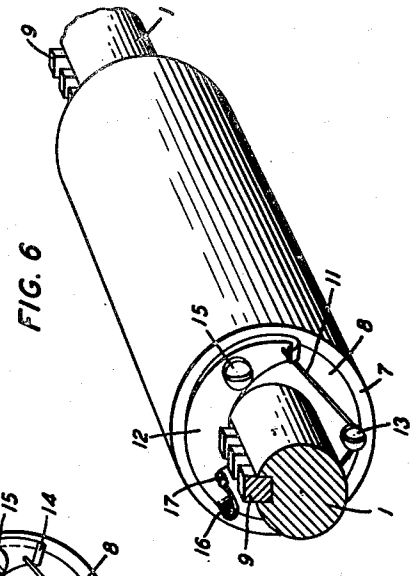


FIG. 6

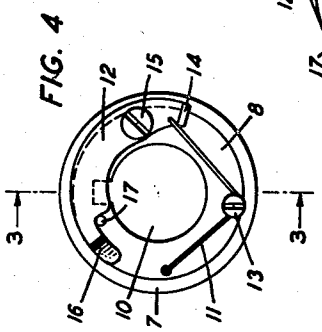


FIG. 4

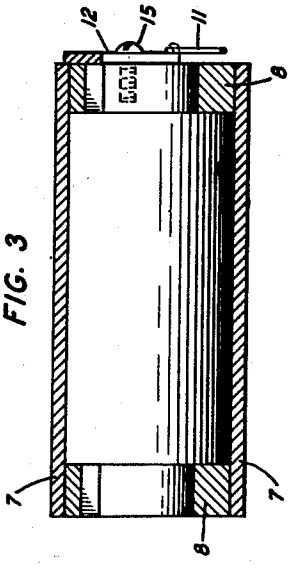


FIG. 3

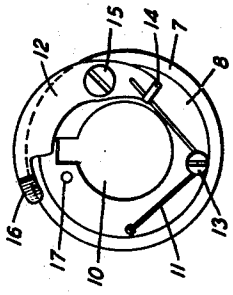


FIG. 5

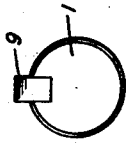


FIG. 2

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VIBRATOR UNIT FOR MULTICOLOR PRINTING PRESSES

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1 Claim. (Cl. 101—348)

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This invention relates to an ink-distributing vibrator unit for use in a printing press designed to print several colors with one impression of the press and, more particularly, to a vibrator unit having a plurality of ink-distributing cylinders adapted to be readily secured in any desired position along the axis of a vibrator bar.

Printing presses for printing several colors with one impression of the press are known in the art, one example being the printing press disclosed in Patent 1,417,769, issued May 30, 1922, to C. A. Richards. In such printing presses, a separate ink-fountain is usually provided for each color that is to be printed. These ink fountains may be of different widths corresponding to the widths of the bands of colors that are to be printed. Each ink-fountain is supplied with a roller for transferring ink from its associated ink-fountain to a ductor roller. Positioned a short distance below the ductor roller is a vibrator unit comprising a plurality of ink-distributing cylinders mounted on a rotating vibrator bar. The ductor roller is carried by an oscillating frame which is designed to move up and down in such a manner as to bring the ductor roller alternately in contact first with the ink-fountain rollers and then with the ink-distributing cylinders on the rotating vibrator bar thereby transferring ink from the ductor roller to these last-mentioned cylinders.

In order to smooth the ink thus transferred, the vibrator bar is reciprocated axially during the same time that it is rotating. Because of this transverse motion of the vibrator bar, each ink-distributing cylinder mounted thereon must be of lesser width than its associated ink-fountain roller. Furthermore, the ink-distributing cylinders must be carefully positioned along the axis of the vibrator bar so that each cylinder will be properly aligned with its respective ink-fountain roller in order to prevent ink of one color from being mixed with ink of a different color.

Such alignment of the ink-distributing cylinders becomes quite difficult when a large number of differently colored inks are used and also when the widths of the bands of colors to be printed are narrow and close together. Various arrangements for adjustably mounting these cylinders on a vibrator bar are known in the art but none permit quick adjustment of the positions of the cylinders when a different printing form is to be used. The problem of adjustably securing the cylinders on a vibrator bar is complicated by the fact that the cylinders ordinarily have a tendency to become loose on the bar due to being repeatedly

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struck by the ductor roller at the same time that they are rotating and reciprocating transversely.

Accordingly, it is an object of this invention to provide positive means for securely holding ink-distributing cylinders on a vibrator bar in positions which may be quickly adjusted.

This and other objects of the invention are accomplished by providing a vibrator bar with a key member having notches or slots formed therein and by providing each ink-distributing cylinder with spring means for engaging a slot in the key member. This engagement of the spring means with the slotted key member serves to positively hold the ink-distributing cylinders securely in their proper positions on the vibrator bar. In order to facilitate quick adjustment of the position of any cylinder on the vibrator bar, the spring means is adapted to be released manually from engagement with the slotted key member by a single manual movement.

These and other features of the invention are more fully discussed in connection with the following detailed description of the drawing in which:

Fig. 1 is a plan view of a vibrator bar unit constructed in accordance with the principles of this invention;

Fig. 2 is an end view of the vibrator bar and its key member;

Fig. 3 is a cross-sectional view of one of the ink-distributing cylinders;

Fig. 4 is an end view of one of the ink-distributing cylinders and its associated locking means;

Fig. 5 is an end view similar to Fig. 4 but showing the locking means in its release position; and

Fig. 6 is a perspective view of a portion of the vibrator bar having one of the ink-distributing cylinders mounted thereon and showing the locking means in engagement with one of the slots in the key member.

In Fig. 1, a vibrator unit is shown to comprise a vibrator bar 1 having five ink-distributing cylinders 2, 3, 4, 5, and 6 mounted thereon. The cylinders 2 to 6, inclusive, are of uniform diameter but are shown to have different lengths. It is to be understood that any desired number of cylinders may be used and that each of them may be of any desired length. Each of the cylinders 2 to 6, inclusive, includes a hollow cylindrical member 7 and two members 8—8 as is shown in Fig. 3. In order to prevent the cylinders 2 to 6, inclusive, from turning on the vibrator bar 1, the bar 1 is provided with a longitudinal key member 9 fitted into and extending out of a groove in the bar 1 as is indicated in Fig. 2. The portion of the

key 9 that extends above the bar 1 has a series of notches or depressions formed therein for a purpose that is explained hereinafter. Each of the end members 8—8 of the cylinders 2 to 6, inclusive, is provided with a central opening indicated at 10 in Fig. 5 for enabling the bar 1 to be inserted therein. Since the size and shape of each opening 10 is similar to the size and shape of the cross-section of the bar 1 and its key member 9, as can be seen by comparing Fig. 2 with Fig. 5, each cylinder is thereby prevented from turning on the bar 1.

In order to hold the cylinders 2 to 6, inclusive, securely in their proper longitudinal positions along the axis of the vibrator bar 1, each cylinder is provided with locking means attached to one of its end members 8. As can be seen in Fig. 4, for example, the locking means includes a spring member 11 and a latching member 12. One end of the spring member 11 is secured to the end member 8 in any suitable manner; its middle portion is bent around a screw 13; and its other end is slidably held by a projection, or tab, 14 formed at the lower end of the latching member 12. The latching, or clamping, member 12 is pivotally secured to the end member 8 by a screw 15. The upper end of the latching member 12 is cut partially away so as to form a hook 16 which is bent outward as shown in Fig. 6 to provide convenient means for manual actuation of the latching member 12.

Since the spring member 11 is designed to press outward against the projection 14, it constitutes biasing means for forcing the upper end of the pivoted latching member 12 downward. When the cylinder is not on the bar 1, the latching member 12 is forced against a stop pin 17 as is shown in Fig. 4. If the cylinder is mounted on the bar 1, the latching member 12 will be forced into one of the notches or slots in the key member 9 as is shown in Fig. 6. This serves to positively hold the ink-distributing cylinder securely in its proper longitudinal position along the axis of the vibrator bar 1 so that it cannot be moved by the repeated impacts of the ductor roller.

The pivoted latching, or clamping, member 12 is moved out of engagement with the slot in the key member 9 by manually pulling its hook portion 16 upward until the latching member 12 is in its release position shown in Fig. 5. When the upper portion of the pivoted latching member 12 is thus pulled upward, its lower portion moves downward with the tab 14 sliding along the end of the spring member 11. As can be seen in Fig. 5, when the latching member 12 is in this release position, it does not block the top portion of the opening 10 in the end member 8 and thereby permits the cylinder to be moved freely along the axis of the vibrator bar 1. Thus, although the cylinders are positively and securely held in place on the bar 1, they can be quickly and easily moved to different positions.

In initially placing the ink-distributing cylinders 2 to 6, inclusive, on the vibrator bar 1, the hook portion 16 of the latching member 12 of each cylinder is manually pulled upward so as not to obstruct the opening 10. The left end of the bar 1 is then inserted through the central openings 10—10 in each cylinder and the cylinders are then moved longitudinally along the bar

1 to their proper positions. When each cylinder reaches its proper place, its associated hook 16 is released thereby permitting the spring member 11 to force the upper end of the pivoted latching member 12 into engagement with one of the slots in the key member 9. The cylinders 2 to 6, inclusive, may be spaced as far apart as is desired or they may be placed closely together. The invention permits considerable flexibility in the arrangement of the cylinders 2 to 6, inclusive, on the bar 1. For example, a pair of cylinders, such as the cylinders 5 and 6 of Fig. 1, may be positioned on the bar 1 immediately against each other by simply placing the cylinder 6 with its spring means on the right and then pushing the cylinder 5 against it as is shown in Fig. 1.

If, after the ink-distributing cylinders have been securely positioned on the vibrator bar 1, a different printing form is installed in the press, the positions of the cylinders can be quickly adjusted to meet the requirements of the new printing form. This is readily accomplished by simply pulling up the hook portion 16 of the latching member 12 on each cylinder, sliding the cylinder along the bar 1 to its new position, and then releasing the hook 16 to permit the latching member 12 to engage a new slot in the bar 1.

This particular embodiment of the invention has been shown and described for the purpose of explaining the principles and features of operation of the invention. It is to be understood that various modifications thereof may be made without exceeding the scope of the invention as defined in the claim appended hereto.

What is claimed is:

In a multicolor printing press, an ink-distributing vibrator unit comprising in combination a vibrator bar, a key member attached to said bar longitudinally along the axis thereof, said key member having a series of slots formed therein, an ink-distributing cylinder carried by said bar, and fastening means carried by said cylinder for detachably securing it to said bar for positively preventing longitudinal movement of said cylinder along the axis of the bar, said fastening means including a latching member pivotally secured to one end of said cylinder, a spring member secured to the aforementioned end of said cylinder for forcing said latching member about its pivot and into engagement with one of the slots formed in said key member, said latching member being bent at one end for slidably retaining one end of said spring member, and said latching member being bent at its opposite end for facilitating the manual application of force in opposition to the force exerted by said spring member for removing said latching member from engagement with said key member.

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