

Fig. 1.

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ATTORNEYS

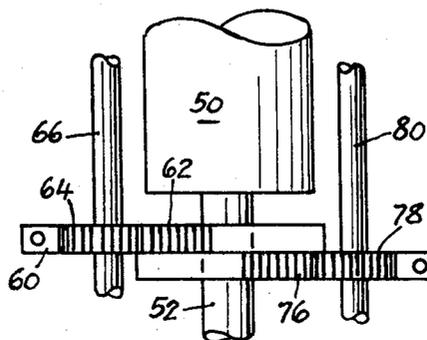


Fig. 3.

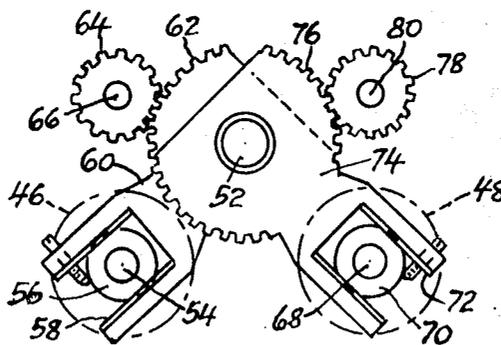


Fig. 2.

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ROTARY OFFSET PRINTING PRESS WITH CYLINDER INTERRUPTER

FIELD OF INVENTION

In order to permit printing equipment to print sheets of different length, it is necessary to provide printing and blanket rolls of different diameter which can be interchanged as required. However, the equipment and constructions heretofore used for this purpose have been complicated and expensive and considerable time and labor are necessary in order to make and change required for printing sheets of different length.

In accordance with the present invention, constructions are provided which are relatively simple and inexpensive and which permit ready change of the printing and blanket rolls with a minimum of time and labor. For this purpose, the printing roll is mounted on a shaft which is movable into and out of a slot in the frame of the machine whereas the blanket roll is removably mounted on an arm which is movable to swing the blanket roll toward and away from the printing or plate roll to the proper operative position where it may be locked in place.

THE DRAWINGS.

FIG. 1 is a vertical sectional view of a portion of a typical offset printing press embodying the present invention,

FIG. 2 is a sectional view of a portion of the construction shown in FIG. 1 illustrating the location and relation of the elements employed for moving the ink rolls into and out of operative relation with respect to the plate roll, and

FIG. 3 is a plan view of those elements shown in FIG. 2.

In that form of the invention chosen for purposes of illustration in the drawings, the printing press has two similar side frame members, one of which is shown at 2, and each of which is provided with a horizontal slot 4 for receiving and supporting a shaft 6 upon which a plate roll 8 is rotatably mounted by means of adjustable bearings 10. The shaft 6 and its bearings are each secured in place at the inner end of slot 4 by means of a positioning block 12 and retaining means 14. A blanket roll 16 is mounted for rotation on a shaft 18 supported by means of bearings 20 carried by similar arms 22 which are located adjacent the inner face of each side frame member 2 and which are secured at their lower ends on a rock shaft 24 mounted for rotation on the side frame members. The upper free end of each arm 22 is provided with a bearing cradle or recess 26 for receiving the eccentric or other adjustable bearing 28 in which shaft 18 of the blanket roll 16 is mounted. A retaining block 30 is secured to the arm 22 over the bearing 28 by means of bolts 32 to secure the shaft 18 and blanket roll in place of the arm 22 while permitting easy removal and substitution of a blanket roll of one diameter for a blanket roll of a different diameter corresponding to the diameter of the plate roll to be employed in any printing operation.

The blanket roll 16 is movable toward and away from the plate roll 8 and into and out of operative relation therewith by suitable adjusting means such as a worm 34 carried by a blanket roll adjusting shaft 36 and engaging a worm gear 38 on shaft 40. The shaft 40 has a pinion 42 thereon which meshes with an arcuate rack or gear segment 44 secured to the rock shaft 24. The blanket roll and its shaft 18 are capable of easy and minor adjustment in position by means of eccentric bearing 28 to assure the proper relation thereof with respect to the plate roll 8 and an impression roll 84. At the same time the adjusting means securely holds the blanket roll in any adjusted position to which it may be moved.

Adjustable ink rolls 46 and 48 are engageable with the plate roll 8 and are supplied with ink by an oscillating inking roll 50 which is rotatable about a shaft 52 and movable transversely of the press and longitudinally of the ink rolls 46 and 48 by conventional means, not shown. The ink roll 46 is rotatable on a shaft 54 by means of a bearing 56 slidable within a channel

58 of a roller holding bracket 60. As shown in FIGS. 2 and 3, the bracket 60 is pivotally mounted for movement about shaft 52 of the oscillating inking roll 50 and is provided with a toothed segment 62 engaged by a pinion 64 on ink roll adjusting shaft 66. In a similar way the ink roll 48 is rotatable on a shaft 68 supported by bearings 70 slidable within the channel 72 of a roller holding bracket 74 pivotally mounted on the shaft 52 of the oscillating inking roll 50. Bracket 74 has a toothed segment 76 engaged by a pinion 78 on ink roll adjusting shaft 80.

The ink rolls 46 and 48 are located on opposite sides of the shaft 52 of the oscillating inking roll 50 and are removable arcuately about the axis of rotation of the oscillating inking roll by means of adjusting shafts 66 and 80 while remaining in operative engagement with the oscillating inking roll. At the same time such adjustment of the ink rolls 46 and 48 serves to move them into and out of position to properly apply the printing ink to a plate roll of any selected diameter.

With the construction thus provided a web of material 82 to be printed is passed over an impression roll 84 and into contact with the blanket roll 16 to which ink has been applied by the plate roll 8 from ink rolls 46 and 48. The length of the web 82 which is printed on each rotation of the blanket roll 16 and plate roll 8 will, of course, depend upon the diameter of these rolls. However, when it is desired the change the length of the web to be printed on each rotation of the plate and blanket rolls these rolls may be changed to substitute corresponding rolls which are of equal diameter but which differ in diameter from that of the roll previously employed.

In order to effect such a change, the blanket roll adjusting shaft 36 is rotated to cause the free end of arm 22 and the blanket roll 16 with its shaft 18 to swing outward away from the plate roll 8 and impression roll 84 to the dotted line position of FIG. 1. The bolts 32 and retaining block 30 can then be removed to permit the blanket roll 18 to be lifted out. The plate roll 8 will then be exposed for removal and replacement and for this purpose the ink roll adjusting shafts 68 and 80 are rotated to move the ink rolls 46 and 48 arcuately about the oscillating inking roll 50 and away from the plate roll 8. Retaining means 14 and positioning block 12 are then displaced whereupon the plate roll 8 and its shaft 6 and bearings 10 can slide out of the frame members 2 along the horizontal slots 4.

For substitution of replacement plate and blanket rolls of the desired and different diameter as represented in dotted lines in FIG. 1, the new plate roll is moved into place by sliding its shaft and bearings into the horizontal slots 4 and securing them in place by means of the positioning block 12 and retaining means 14. The substitute blanket roll, which is of course, of the same diameter as the substitute plate roll, is then mounted on the free ends of the pivoted arms 22 and swing inward into contact with the plate roll and impression roll by rotation of the blanket roll adjusting shaft 36. The impression roll is preferably mounted for rotation about a fixed axis and is of predetermined diameter since it is not displaced or removed in replacing the plate roll and blanket roll. Any minor adjustments of the blanket roll to effect the proper contacting of the blanket roll with both the plate roll and the blanket roll can be effected by manipulation of the adjustable bearings on the shafts of the plate roll and blanket roll.

The ink rolls 46 and 48 are then moved into contact with the plate roll 8 by rotation of the ink roll adjusting shafts 66 and 80 whereupon the press is readied for printing repeated but different lengths of the web 82 in the desired manner.

The substitution of plate and blanket rolls and the accurate adjustment thereof with respect to each other and with respect to the ink applying rolls can thus be effected quickly and easily without displacement of the impression roll. As a result the versatility of the printing press and its ability to print various different lengths and types of sheet material is greatly increased whereas the amount of time and labor involved in effecting such changes is minimized. The same printing press can accordingly be used to print forms of the like which are

measured in either inches or by the metric system and it is possible to establish the location of transverse perforations, numbers and the like in predetermined positions with respect to the printing applied to a web of material.

I claim:

1. An offset printing press comprising:

- a. a plate roller and a blanket roller;
- b. supporting shafts extending axially from each said plate roller and blanket roller;
- c. a frame for supporting said plate roller;
- d. a slot formed to extend generally horizontally within said frame for receiving the support shaft associated with said plate roller;
- e. said slot having a length being at least as great as the diameter of the shaft supporting said plate roller;
- f. means for holding the shaft supporting said plate roller in a fixed position within said slot;
- g. a pair of upwardly extending arms pivotally mounted on said frame and provided at the free ends thereof with means for releasably supporting the shaft supporting said blanket roller to facilitate the changing of said blanket roller;

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- h. said blanket roller being journaled for rotation by adjustable bearing means mounted at the free ends of said pair of upwardly extending arms;
- i. gear drive means associated with said upwardly extending arms for pivoting said blanket roller from a plate roller engaging position to an outer plate roller disengaged position in response to the application of torque to said gear drive means;
- j. said gear drive means being further operable to precision adjust and then to lock said arm in a desired position;
- k. a fixed inking roller journaled within said frame for rotation about a stationary axis disposed parallel with and above the axis of said plate roller;
- l. at least one adjustable inking roller engageable with both said fixed inking roller and said plate roller; and
- m. gear means for revolving said adjustable inking roller along an arc of constant radius about said stationary axis of said fixed inking from a plate roller engaging position to a plate roller disengaged position while maintaining contact between said adjustable inking roller and said fixed inking roller.