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SHEET FEEDING MEANS FOR ROTARY PRINTING PRESSES

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2 Claims. (Cl. 271-9)

In high speed rotary printing presses it has frequently been necessary to reduce the speed of the press because of the impossibility of accurately feeding the sheets fast enough thereto from a single feeder.

My invention comprises means for feeding the sheets from different points to the printing press whereby ample time for the accurate feeding of the sheets is obtained.

My invention further comprises means for feeding the sheets alternately from different points to a single set of grippers on a rotary carrier, which carrier transfers the sheets successively to the press at a common point.

My invention still further comprises means for feeding the sheets alternately from oppositely disposed feeders to the top and bottom respectively of the rotary carrier at successive revolutions, the carrier being operable to transfer a sheet to the impression cylinder of the press every revolution of the carrier.

A practical embodiment of my invention is represented in the accompanying drawing in which:

Fig. 1 represents a diagrammatic side view of my improved sheet feeding means applied to a multi color perfecting rotary printing press; and

Fig. 2 represents a diagrammatic detail view showing more clearly the means for controlling the operation of the rotary carrier grippers and the sheet stops for the feeders.

The sheet printing rotary press herein illustrated is shown as comprising a first printing unit in which the two plate cylinders are denoted by 1 and 2 and their common impression cylinder 3, and a second printing unit in which the two plate cylinders are denoted by 4 and 5 and their common impression cylinder by 6. The sheets in this form are printed in two colors on each of their sides.

The impression cylinder 3 of the first printing unit is shown as provided with two diametrically opposed sets of grippers 7 and 8 arranged to successively take the sheets at a common point and transfer them when printed on one side to their respective diametrically opposed sets of grippers 9 and 10 on the impression cylinder 6 of the second printing unit.

The perfected sheets may be deposited onto the endless carrier 11 and transferred thereby to the endless delivery carrier 12.

My improved sheet feeding mechanism is constructed, arranged and operated as follows: The rotary sheet feeding carrier 13 is provided with a single set of grippers 14, which grippers are arranged to take a sheet on one revolution of the

carrier from the sheet feeder 15 and on the next revolution of the carrier from the sheet feeder 16. This set of grippers is arranged every revolution of the carrier to transfer a sheet either to the grippers 7 or the grippers 8 of the impression cylinder 3 of the first printing unit.

These feeders 15 and 16 are arranged to feed the sheets from opposite directions to the top and bottom respectively of the rotary carrier.

The carrier grippers 14 are provided with a tumbler cam 17 which is actuated every second revolution of the carrier by the movable pin 18 to cause the grippers to take a sheet from the top feeder 15, and every alternate revolution of the carrier by the movable pin 19 to cause the grippers to take a sheet from the bottom feeder 16.

A fixed tumbler actuating pin 20 is located in position to open the grippers 14 every revolution of the rotary carrier to transfer successive sheets to their respective impression cylinder grippers 7 and 8.

The tumbler actuating pins 17 and 18 are alternately moved into and out of operative position by a rock lever 21 which is under the control of a rotary cam 22 on the shaft 23, which shaft is driven at half speed from the shaft 24 of the rotary carrier 13 through the gears 25, 26.

A rotary cam 27 on the shaft 23 actuates the top sheet stop 28 for the feeder 15 through the rock lever 29. A rotary cam 30 on the shaft 24 actuates the bottom sheet stop 31 for the feeder 16 through the rock lever 32.

The impression cylinder grippers 7 and 8 may be actuated at the proper times to take and transfer the sheets by the usual fixed cams 33 and 34. The impression cylinder grippers 9 and 10 may also be actuated at the proper times to take the first printed sheets from their respective grippers 7 and 8 and deposit them onto the endless transfer carrier 11 by the usual fixed cams 35 and 36.

It is desirable that sufficient time be given to properly register the sheets on both the upper and lower feeders. To accomplish this result the front member 16* of the feeder 16 may be hinged at 37, which front member carries the sheet stop 31. A box cam 38 on the shaft 23 controls the rocking movement of the feeder member 16* through a yoke 39 carrying a stud or roller 40 which travels in the cam groove 41, thereby permitting the sheet stop 31 to be lowered with the swinging front member 16* while the stop is still in its operative position, to let the sheet from the feeder 15 pass by the sheet stop 31 to the impression cylinder 3. By this arrangement a substantially equal time may be given

to each feeder for bringing the sheets into proper register before they are taken by the rotary carrier grippers 14.

From the above description it will be seen that I have provided means for feeding sheets from two separate points to a single set of grippers on a continuously rotating carrier to be transferred thereby to the printing press.

It will also be seen that I have provided means for taking the sheets alternately on successive revolutions of the carrier and feeding them successively on successive revolutions of the carrier to the printing press.

It will also be seen that by feeding the sheets alternately to the top and bottom of the rotary carrier the sheets may be fed sufficiently fast to the printing press for permitting the press to be run at very high speeds and yet ensure the accurate registry of the sheets.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the particular

embodiment herein shown and described, but what I claim is:

1. Means for feeding sheets to the impression cylinder of a rotary printing press comprising two sheet feed tables and a common rotary carrier having a single set of grippers operable to take a sheet on one revolution of the carrier directly from one sheet feed table and on the next revolution of the carrier directly from the other sheet feed table and to transfer a sheet every revolution of the carrier directly to the impression cylinder.

2. Means for feeding sheets to the impression cylinder of a rotary printing press comprising oppositely disposed upper and lower sheet feed tables and a common rotary carrier having a single set of grippers operable to take a sheet on one revolution of the carrier directly from the upper sheet feed table and on the next revolution of the carrier directly from the lower sheet feed table and to transfer a sheet every revolution of the carrier directly to the impression cylinder.

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