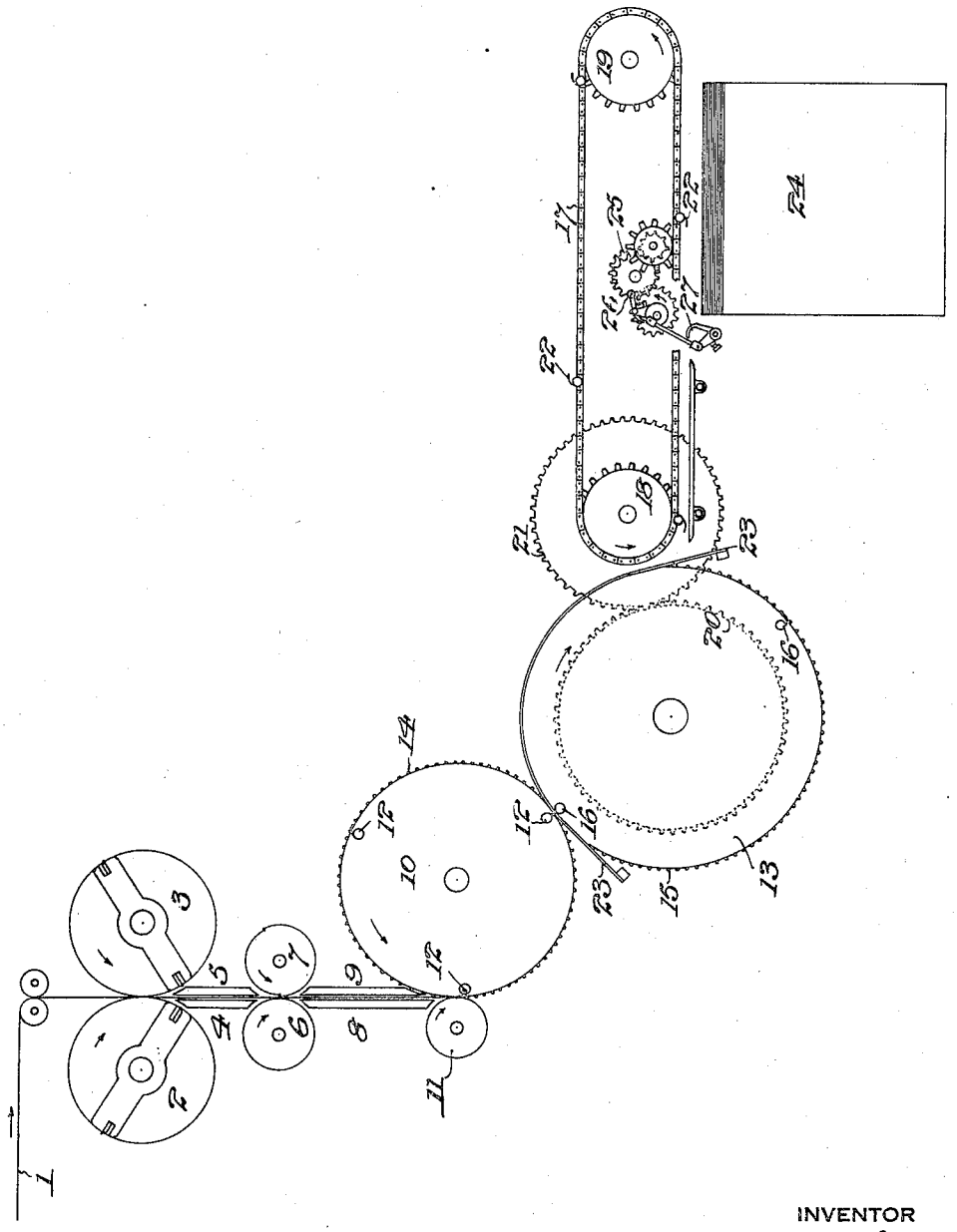
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FLAT SHEET DELIVERY FOR WEB PRINTING ROTARY PRESSES

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FLAT SHEET DELIVERY FOR WEB PRINTING ROTARY PRESSES

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8 Claims. (Cl. 271—76)

In high speed web printing rotary presses having flat sheet deliveries it is desirable that the speed of the sheets be materially reduced on their way to the delivery piles. I have found that by providing a stationary support over which the sheets are drawn as they are forwarded from the sheet collecting rotary carrier to the sheet delivery endless carrier, the sheet transfer rotary carrier may be driven at the same high surface speed as the sheet collecting rotary carrier and that the endless sheet delivery carrier may be driven at a slower surface speed, it being understood that the higher surface speed of the sheet transfer rotary carrier will not affect the sheets after their leading ends have been taken by the sheet delivery endless carrier grippers because the sheets are being drawn over the said stationary support by the slower moving sheet delivery endless carrier grippers.

A practical embodiment of my invention is represented in the accompanying drawing, in which the figure represents a diagrammatic side elevation of a single flat sheet delivery.

The traveling web 1 is led through the coacting rotary cutters 2, 3, the guides 4, 5, the rolls 6, 7 and the guides 8, 9 to a point between the sheet collecting rotary carrier 10 and its presser roll 11. This sheet transfer rotary carrier is herein shown as a three-way collecting carrier having the three sets of equally spaced grippers 12. This rotary carrier is driven at a surface speed equal to the speed of travel of the web by any well known or approved means (not shown herein).

The sheet transfer rotary carrier 13 is driven at the surface speed of the sheet collecting rotary carrier 10, as for instance through the gears 14, 15. This sheet transfer rotary carrier is shown as having a circumference one-third longer than the circumference of the sheet collecting rotary carrier 10 and as being provided with two sets of equally spaced grippers 16 arranged to coact with every second set of grippers 12 on the sheet collecting rotary carrier 10 to take a collected group of sheets therefrom.

A horizontally disposed sheet delivery endless carrier 17 of the well known sprocket chain type passes around inner and outer sprocket wheels 18 and 19, which endless carrier is driven at a surface speed less than that of the collecting and transfer rotary carriers, as for instance through the gears 20, 21. This sheet delivery endless carrier is provided with spaced sets of grippers 22, arranged to take the leading ends of the collected groups of sheets from the successive sheet transfer rotary carrier grippers 16.

Because the surface speed of the sheet delivery endless carrier is less than the surface speed of the sheet collecting and transfer carriers I provide a curved stationary support 23 over which the groups of sheets travel as they are forwarded by the sheet transfer rotary carrier grippers 16 from the sheet collecting rotary carrier grippers 12 to the sheet delivery endless carrier grippers 22. This permits the sheet transfer rotary carrier 13 to travel at the same surface speed as the sheet collecting rotary carrier 10 without disturbing the slower travel of the groups of sheets after their leading ends have been taken by the sets of grippers 22 on the slower moving sheet delivery endless carrier 17.

The means which I have shown for taking the sheets from the sheet delivery endless carrier and depositing them flat onto the pile 24 is herein shown as a sheet tail end engaging mechanism 25 of well known or approved form, such for instance as that disclosed in my copending application, filed May 20, 1936, Serial No. 80,667, which mechanism comprises, generally, coacting rotary and oscillating nippers 26 and 27 driven from the sheet delivery endless carrier and operable to depress the tail ends of the sheets, retard, and stop the sheets and deposit them onto their delivery pile.

From the above description it will be seen that by providing the curved stationary support which partially surrounds the sheet transfer carrier, the collected groups of sheets are drawn along the support first at the speed of the web, by the transfer carrier grippers and then at a lesser speed by the delivery carrier grippers, thereby allowing the transfer carrier to travel at the surface speed of the sheet collecting carrier and yet permit the sheets to be slowed down as soon as their leading ends have been taken by the delivery carrier grippers.

It will also be seen that the sheet tail end nippers serve to still further retard and to stop the travel of the sheets before they are deposited upon the pile.

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 cutting sheets from a traveling web, and a flat sheet delivery therefor comprising a rotary carrier arranged to collect a group of sheets, a sheet delivery carrier, a rotary car-

rier for transferring the collected groups of sheets from the sheet collecting carrier to the sheet delivery carrier, and a curved stationary sheet support along the convex side of which the sheets are drawn as they are forwarded by the sheet transfer and delivery carriers, said sheet support partially surrounding the upper side of the transfer carrier and extending between it and the sheet collecting and delivery carriers.

2. Means for cutting sheets from a traveling web, and a flat sheet delivery therefor comprising a rotary carrier arranged to collect a group of sheets, a sheet delivery endless carrier, a rotary carrier for transferring the collected groups of sheets from the sheet collecting carrier to the sheet delivery endless carrier, and a curved stationary sheet support along the convex side of which the sheets are drawn as they are forwarded by the sheet transfer and delivery carriers, said sheet support partially surrounding the upper side of the transfer carrier and extending between it and the sheet collecting and delivery carriers.

3. Means for cutting sheets from a traveling web, and a flat sheet delivery therefor comprising a rotary carrier arranged to collect a group of sheets, a sheet delivery carrier, a rotary carrier for transferring the collected groups of sheets from the sheet collecting carrier to the sheet delivery carrier, and a curved stationary sheet support along the convex side of which the sheets are drawn as they are forwarded by the sheet transfer and delivery carriers, said sheet support partially surrounding the upper side of the transfer carrier and extending between it and the sheet collecting and delivery carriers, means for driving the sheet collecting and transfer carriers at the surface speed of the web and the sheet delivery carrier at a lesser surface speed.

4. Means for cutting sheets from a traveling web, and a flat sheet delivery therefor comprising a rotary carrier arranged to collect a group of sheets, a sheet delivery endless carrier, a rotary carrier for transferring the collected groups of sheets from the sheet collecting carrier to the sheet delivery endless carrier, and a curved stationary sheet support along the convex side of which the sheets are drawn as they are forwarded by the sheet transfer and delivery carriers, said sheet support partially surrounding the upper side of the transfer carrier and extending between it and the sheet collecting and delivery carriers, means for driving the sheet collecting and transfer carriers at the surface speed of the web and the sheet delivery carrier at a lesser surface speed.

5. Means for cutting sheets from a traveling web, and a flat sheet delivery therefor comprising a rotary carrier having three sets of equally spaced grippers, each arranged to collect a group of sheets, a sheet delivery carrier having spaced sets of grippers, a rotary carrier having two sets of equally spaced grippers arranged to transfer the collected groups of sheets from the sheet collecting carrier grippers to the sheet delivery carrier grippers, and a curved stationary sheet support along the convex side of which the sheets are drawn as they are forwarded by the sheet transfer and delivery carriers, said sheet support partially surrounding the upper side of the transfer carrier and extending between it and the sheet collecting and delivery carriers.

6. Means for cutting sheets from a traveling web, and a flat sheet delivery therefor comprising a rotary carrier having three sets of equally spaced grippers, each arranged to collect a group of sheets, a sheet delivery endless carrier having spaced sets of grippers, a rotary carrier having two sets of equally spaced grippers arranged to transfer the collected groups of sheets from the sheet collecting carrier grippers to the sheet delivery endless carrier grippers, and a curved stationary sheet support along the convex side of which the sheets are drawn as they are forwarded by the sheet transfer and delivery carriers, said sheet support partially surrounding the upper side of the transfer carrier and extending between it and the sheet collecting and delivery carriers.

7. Means for cutting sheets from a traveling web, and a flat sheet delivery therefor comprising a rotary carrier having three sets of equally spaced grippers, each arranged to collect a group of sheets, a sheet delivery carrier having spaced sets of grippers, a rotary carrier having two sets of equally spaced grippers arranged to transfer the collected groups of sheets from the sheet collecting carrier grippers to the sheet delivery carrier grippers, and a curved stationary sheet support along the convex side of which the sheets are drawn as they are forwarded by the sheet transfer and delivery carriers, said sheet support partially surrounding the upper side of the transfer carrier and extending between it and the sheet collecting and delivery carriers, means for driving the sheet collecting and transfer carrier grippers at the surface speed of the web and the sheet delivery carrier grippers at a lesser surface speed.

8. Means for cutting sheets from a traveling web, and a flat sheet delivery therefor comprising a rotary carrier having three sets of equally spaced grippers, each arranged to collect a group of sheets, a sheet delivery endless carrier having spaced sets of grippers, a rotary carrier having two sets of equally spaced grippers arranged to transfer the collected groups of sheets from the sheet collecting carrier grippers to the sheet delivery endless carrier grippers, and a curved stationary sheet support along the convex side of which the sheets are drawn as they are forwarded by the sheet transfer and delivery carriers, said sheet support partially surrounding the upper side of the transfer carrier and extending between it and the sheet collecting and delivery carriers, means for driving the sheet collecting and transfer carrier grippers at the surface speed of the web and the sheet delivery carrier grippers at a lesser surface speed.

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