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PAPER CUTTING AND DELIVERY MECHANISM FOR WEB CYLINDER LITHOGRAPHING OR PRINTING PRESSES

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Fig. 1

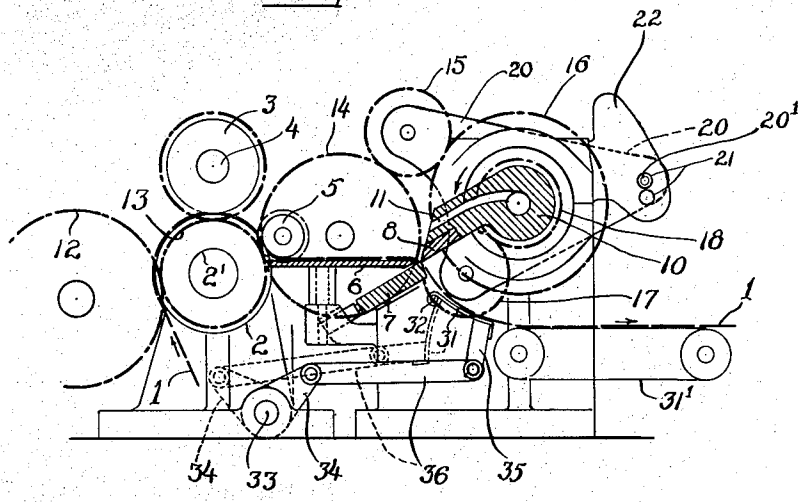
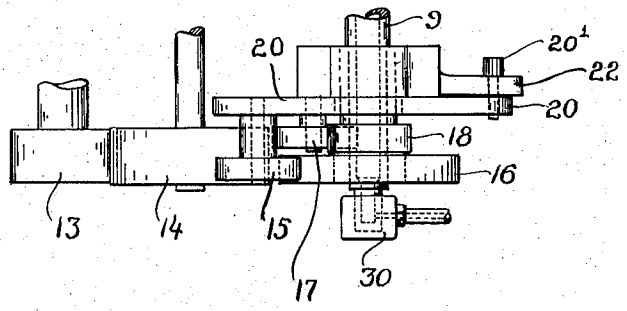


Fig. 2



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PAPER-CUTTING AND DELIVERY MECHANISM FOR WEB CYLINDER LITHOGRAPHING OR PRINTING PRESSES

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5 Claims. (Cl. 164—67)

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This invention relates to improvements in cutting and delivery mechanism for web cylinder lithographic or printing presses.

An object of the invention is to provide improved means for throwing out or rejecting sheets.

A further object of the invention is to provide means for cutting off and delivering different sizes of sheets.

With these and still other objects which will appear in the following full description in mind, the invention consists in the combinations and arrangements of parts which will now first be fully described in connection with the accompanying drawing and then be more particularly pointed out in the appended claims.

In the drawing:

Figure 1 is a longitudinal sectional view of cut-off and delivery mechanism embodying the invention in a preferred form of embodiment; and

Figure 2 is a plan view showing the gearing of the device of Figure 1.

The present invention is an improvement upon the machine disclosed in Smith Patent No. 2,011,505, granted August 13, 1935, for Paper cutting and delivery mechanism for web cylinder lithographic or printing presses. Inasmuch as such mechanism is, in general, now well-known, only the elements necessary for a full understanding of the present invention are described herein.

Referring to Figure 1, a web 1 which has previously been printed by the printing cylinders, not shown, is shown as passing between the conveyor or feed roller 2 and conveyor wheels 3 which are carried on shaft 4. The web continues under a sand or emery roller 5 and along guide plate 6 to the cutting off mechanism, comprising stationary ledger blade 7 and rotary cutter blade 8, being cut into sheets thereby. The rotary cutter blade is carried on a hollow member 10, through the center of which air is supplied for a purpose later described to a slot 11.

The mechanism is driven by gear 12 off the press drive. The entire mechanism may be advanced or retarded for register with the printing units, where desired, by utilizing any of the usual mechanisms for so adjusting the gear 12. Gear 12 meshes with a gear 13 fixed on the shaft 2' of roller 2 for driving the same. Gear 13, in

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turn, drives the intermediate gear 14 and this gear drives the rotary cutter either through gears 15 and 16 or through gears 17 and 18. The gears 15 and 17 are constantly in mesh with gears 16 and 18, and are carried by a swinging plate 20 which is pivoted around the shaft 9 which carries hollow member 10 for swinging concentrically about the common axis of gears 16 and 18. With this plate in the position of Figure 1, the drive is from gear 14 through gears 15 and 16, this drive corresponding to the cutter speed for producing a sheet of longer length, as, for example, seventeen inches. Swinging the plate 20 clockwise in the figure will move the gear 15 out of mesh with the intermediate gear 14 and will bring gear 17 into mesh therewith. The gear ratios are selected so that when the gears are shifted to this alternative position, the cutter will be rotated at twice the speed so as to cut off sheets of half the length, as, for example, eight and one-half inches. The plate 20 may be fixed in either position of adjustment by pin 20' cooperating with holes 21 in the frame 22. Utilizing a pile delivery of usual type, driven by a cam arrangement from the cutter, as shown in the Smith patent, or otherwise, moveable elements of the delivery will automatically run at the appropriate speed with relation to the cutter in either position of the gearing. The sheets having been cut off are received on a guide plate 31 and directed to delivery tapes 31'.

The guide plate 31 is pivotally mounted on shaft 32 and may be dropped into the position shown in dotted lines by moving the shaft 33, which is connected to the guide plate through arms 34 and 35 and a link 36. The shaft 33 may be oscillated either manually or automatically as desired either from a position adjacent thereto or remote therefrom. When the shaft 33 is moved to the left to bring the guide plate in the dotted line position, the sheets will no longer be guided to the delivery belts 31, but will be deflected downward into a suitable receptacle within the frame. The hollow member 10 carrying the cutter is connected to a rotary air valve 30 which automatically opens and closes in proper timed relation to direct a blast of air against the sheet as it passes the blade 7, and air pressure is supplied to the valve 30 by a line not shown which is provided with a cut-off valve that is

opened only when the shaft 33 is turned to move the guide plate 31 to the dotted position. Thus when the shaft 33 is turned to deflect an unwanted sheet, air is simultaneously directed through the slot 11 against the sheet and prevents it from reaching the delivery belts 31. The air valve 30 may be of the type shown in the Smith patent, above mentioned, or of any other suitable form.

What is claimed is:

1. In a cutting and delivery mechanism for cylinder presses, the combination with the rotary cutter and the feed roller, of a gear in driving connection with the feed roller, an idle gear and a gear fixed to the cutter for driving the same from the first said gear, a second idle gear and a second gear fixed to the cutter for driving the same from the first said gear at a different ratio, a frame for holding the said idle gears in mesh with the respective gears fixed to the cutter shaft, and means supporting the said frame for pivoting about the cutter axis to engage the said idle gears alternatively with the first said gear for changing the length of sheet cut off by the cutter.

2. In a cutting and delivery mechanism for cylinder presses, the combination with web feed mechanism and a rotary cutter coacting therewith to cut sheets, of guide means for receiving sheets from the cutter and directing them to a delivery station, air blast means operable to deflect the sheets downwardly on to the said guide means, and means for moving the said guide means to guide sheets under the action of said air blast downwardly to a reject station.

3. In a cutting and delivery mechanism for cylinder presses, the combination with web feed mechanism and rotary cutter coacting therewith to cut sheets, of guide means for receiving sheets from the cutter and directing them to a delivery station, air blast means synchronized with said cutter for deflecting the sheets downwardly on to the said guide means as they emerge from the cutter, and means for moving the said guide means to guide sheets under the action of said air blast downwardly to a reject station.

4. In a cutting and delivery mechanism for cylinder presses, the combination with web feed mechanism and a rotary cutter coacting therewith to cut sheets, of guide means for receiving sheets from the cutter and directing them to a delivery station, air blast means embodied in the cutter and operable to deflect sheets downwardly on to the said guide means, and means for moving the said guide means to guide sheets under the action of said air blast downwardly to a reject station.

5. In a cutting and delivery mechanism for cylinder presses, the combination with web feed mechanism and a rotary cutter coacting therewith to cut sheets, of means for selectively driving the cutter at either of two predetermined speed ratios from the web feed mechanism, guide means for receiving sheets from the cutter and directing them to a delivery station, air blast means embodied in the cutter and operable when the cutter is in a predetermined position to deflect sheets downwardly on to the said guide means as they emerge from the cutter, and means for moving the said guide means to guide sheets under the action of said air blast downwardly to a reject station.

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