(No Model.) 2 Sheets—Sheet 1.

A. R. BARTLAU.

SHEET DELIVERY APPARATUS FOR PRINTING MACHINES.

No. 404,951. Patented June 11, 1889.

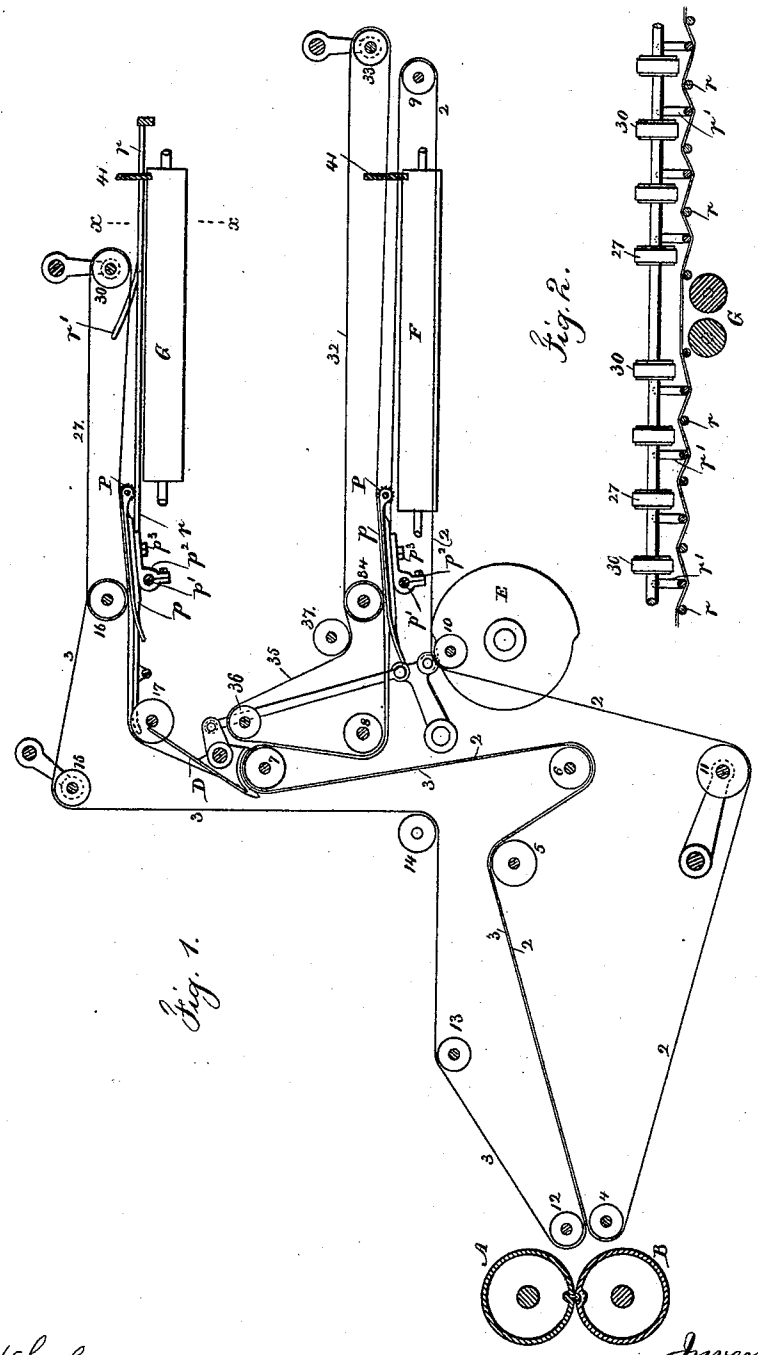


Fig. 1.

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

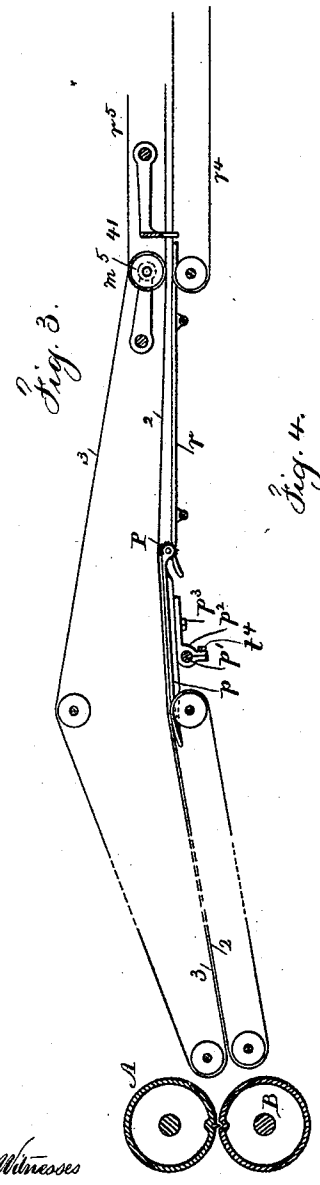


Fig. 4.

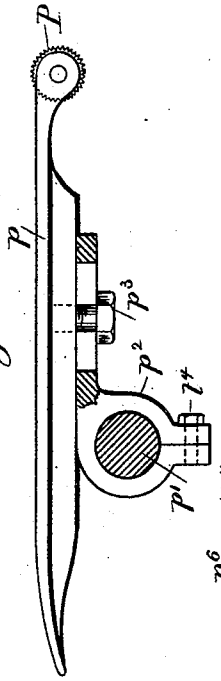
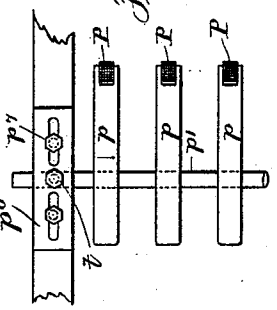


Fig. 5.



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UNITED STATES PATENT OFFICE.

AUGUST RUDOLPH BARTLAU, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO WALTER SCOTT, OF SAME PLACE.

SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 404,951, dated June 11, 1889.

Application filed October 31, 1888. Serial No. 289,620. (No model.)

To all whom it may concern:

Be it known that I, AUGUST RUDOLPH BARTLAU, of Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Sheet-Delivery Apparatus for Printing-Machines, of which the following is a specification.

My improvement is for that class of printing-presses in which two or more sheets are laid one upon the other previous to being folded or passed out of the press; and my invention relates to means for depressing with certainty the rear edge of each sheet as it is laid upon the bars or tapes, so that such rear edge will be out of the path of the advancing edge of the following sheet. I make use of rollers having toothed or roughened surfaces, which rollers are rotated by the sheet-conveying tapes, and these rollers are preferably supported by bars that guide the sheet to such rollers, and the sheet passes between such rollers and the conveying-tapes, and as the rear edge of the sheet passes over the top of the rollers the teeth upon said rollers take against such rear edge of the sheet and carry the same down below the path of the advancing edge of the next sheet.

In the drawings, Figure 1 is a diagrammatic view representing the belts and pulleys for conveying the sheets to the respective pair of folding-rollers. Fig. 2 is a section at the line x x of Fig. 1. Fig. 3 is a diagrammatic view representing my improvement as applied to an arrangement of pulleys and belts, in which the sheets are associated upon belts and conveyed periodically to the folding device. Fig. 4 is a sectional elevation in larger size, showing the sheet-depressing roller and guide upon an adjustable arm secured to a supporting rod or shaft; and Fig. 5 is a plan view of a few of the rollers and guides, with the supporting rod or shaft adjustable.

Referring to Fig. 1, A and B represent cutting-cylinders of usual construction, and 2 and 3 are the tapes or belts for conveying away the printed sheets to the folding-rolls F F and G G. The tapes 2 pass around the pulleys 4, 5, 6, 7, 8, 9, 10, and 11, and the belts 3 pass around the pulleys 12, 13, 14, 15, 16, 17, 7, 6, and 5, the pulleys 15 and 11 being tighteners for the belts 3 and 2, respectively.

The belts 2 and 3 pass together over the pulleys 5, and the sheet is nipped at this point, and said belts travel faster than the periphery of the cutting-cylinders A and B; hence one sheet is separated from the next, and the successive sheets are carried by said belts 2 and 3 around the pulleys 6 and up to the pulleys 7, and at this point a switch D directs the sheets either up and over the pulleys 17 to the folding-rollers G or else around the pulleys 7 and down under the pulleys 8 to the folding-rollers F, said switch D being moved periodically by a cam E. There are also tapes 27, passing around the pulleys 16 and 30 to aid in conveying the sheets to the folding-rollers G G, and tapes 35 and 32, passing around pulleys 8, 36, 37, and 34, and 34 and 33, respectively, to aid in conveying the sheets to the folding-rollers F F.

The arrangement of sheet-covering tapes and pulleys above set forth is similar to that set forth in an application for patent filed by Walter Scott, March 2, 1888, Serial No. 265,922, and is not claimed by me.

My invention relates to the sheet-depressing rollers P, and to the means for adjusting the same. The rollers P are preferably fitted to turn freely in bearings at the ends of the guide-bars p, and these guide-bars are supported by arms p^2, clamped to a rod or shaft p'. There is a slot in each arm p^2 for the passage of the bolt p^3, that secures the guide-bar to the arm, and this slot allows for the adjustment of the guide-bar upon said arm p^2, so that the rollers P, carried by the guide-arms, may be placed nearer to or farther from the fence 41, and thereby accommodate the size of sheet that is to be delivered to the folding-rolls.

Instead of adjusting the guide-bars and their rollers upon the arms p^2, the rod or shaft p', that carries said arms, may be supported at its ends in boxes p^6, and the boxes provided with slotted holes for the bolts that clamp said boxes to their supports upon the frame of the machine, as shown in Fig. 5. Thereby the adjustment of the rollers P is effected by moving the shaft p' and its boxes p^6 upon their supports, after which the boxes are clamped to place by the bolts p^7.

The surfaces of the rollers P are cut longi-

tudinally, so as to form V-shaped teeth, or they may be scored diagonally, or both longitudinally and circumferentially, or otherwise cut, so as to form a toothed surface, or a surface with projecting points; and it is now to be understood that the belts or tapes 27 and 32, Fig. 1, pass over the rollers P and rotate said rollers, and that the sheets pass up the guide-bars p and between the rollers P and tapes 27 or 32, and as the rear edge of each sheet passes over the tops or center lines of said rollers P the toothed surfaces of said rollers take against said rear edge and carry it down, so that the sheet rests upon the bars or tapes over or approaching the folding-rollers, and said rear edge of the sheet is entirely out of the path of the advancing end of the following sheet. The front edge of each sheet is stopped by the fence 41.

I have shown rods r, above the folding-rolls G and tapes 2 above the folding-rolls F, upon which bars and tapes the sheets are associated previous to being carried down between the folding-rolls. There are short rods r' intermediate of the bars r, below which the advancing end of each sheet passes, and these bars r' are so positioned with respect to the bars r that they slightly corrugate the front end of the sheet, thereby stiffening the same and preventing said front end being bent or turned over by coming in contact with the fence 41.

The rollers P, Fig. 3, act, as before described, to carry down the rear edge of each sheet as the sheets are laid successively upon the bars r, and after the desired number of sheets have been laid one upon the other the fence 41 is raised and any suitable forwarding device brought into action, such as the pulley-rollers m^5, that are brought down so that the sheets will be carried away by the tapes r^4 and r^5 to the folding or delivery device. I have shown the fence 41 and the rollers m^5 as upon arms carried by rock-shafts, and the latter are to be operated periodically by any desired means. Instead of the rollers P being a number of small pulleys, as shown in Figs. 1, 3, 4, and 5, a single toothed roller may extend across beneath the range of sheet-conveying tapes 27 or 32 or 2, said roller being supported at its end by arms carried by the shaft or rod p', and the guide-bars p, also carried by said rod p', being placed at suitable distances upon said rod or shaft and extending almost to the roller P, to guide the sheets to said roller.

The roller or rollers P are preferably driven by contact with the belts or tapes; but I do not limit myself in this particular. The fences or stops 41 are of any ordinary or desired character.

The rod or shaft p' may be turned to place the guide-bars so that the roller or rollers P will bear properly against the sheet-conveying tapes, and said shaft is to be securely clamped, so that it cannot turn after the parts have been positioned. I have shown a bolt at t, Fig. 5, for clamping said shaft; or the rollers and guides may be positioned by loosening the clamping-bolts t^1 and turning the arms p^2, and then reclamping said arms.

If the tapes 2 are extended to the rolls P, the arms p may be dispensed with, in which case belt-rolls are required on the same axes as the toothed rolls P.

I claim as my invention—

1. The combination, with the sheet-conveying belts or tapes and bars or tapes for receiving the associated sheets, of a roller having a toothed or roughened surface for passing down the rear end of each sheet as the sheets are laid successively upon said bars or tapes, substantially as set forth.

2. The combination, with the sheet-conveying belts or tapes and bars or tapes for receiving the associated sheets, of the sheet-depressing roller P, guide-bars for directing the sheets to such roller, and means, substantially as specified, for adjusting such guide-bars and roller, as set forth.

3. The combination, with the sheet-conveying belts or tapes and bars or tapes for receiving the associated sheets, of the guide-bars p, toothed rollers carried by said guide-bars, the slotted arms p^2, to which the bars p are clamped, and the rod or shaft p', to which the arms p^2 are secured, substantially as specified.

4. The combination, with the sheet-conveying belts and bars or tapes for receiving the associated sheets, of a roller having a roughened surface for carrying down the rear edge of each sheet and a movable stop for the front edges of the sheet, substantially as set forth.

5. The combination, with the sheet-conveying belts and bars or tapes for receiving the associated sheets, of a roller having a roughened surface for carrying down the rear edge of each sheet, a movable stop for the front edges of the sheets, and a forwarding device for moving the associated sheets when the stop is raised, substantially as set forth.

Signed by me this 26th day of April, 1888.

AUGUST RUDOLPH BARTLAU.

Witnesses:

E. CORIELL BOICE,

G. THORN.