

(No Model.)

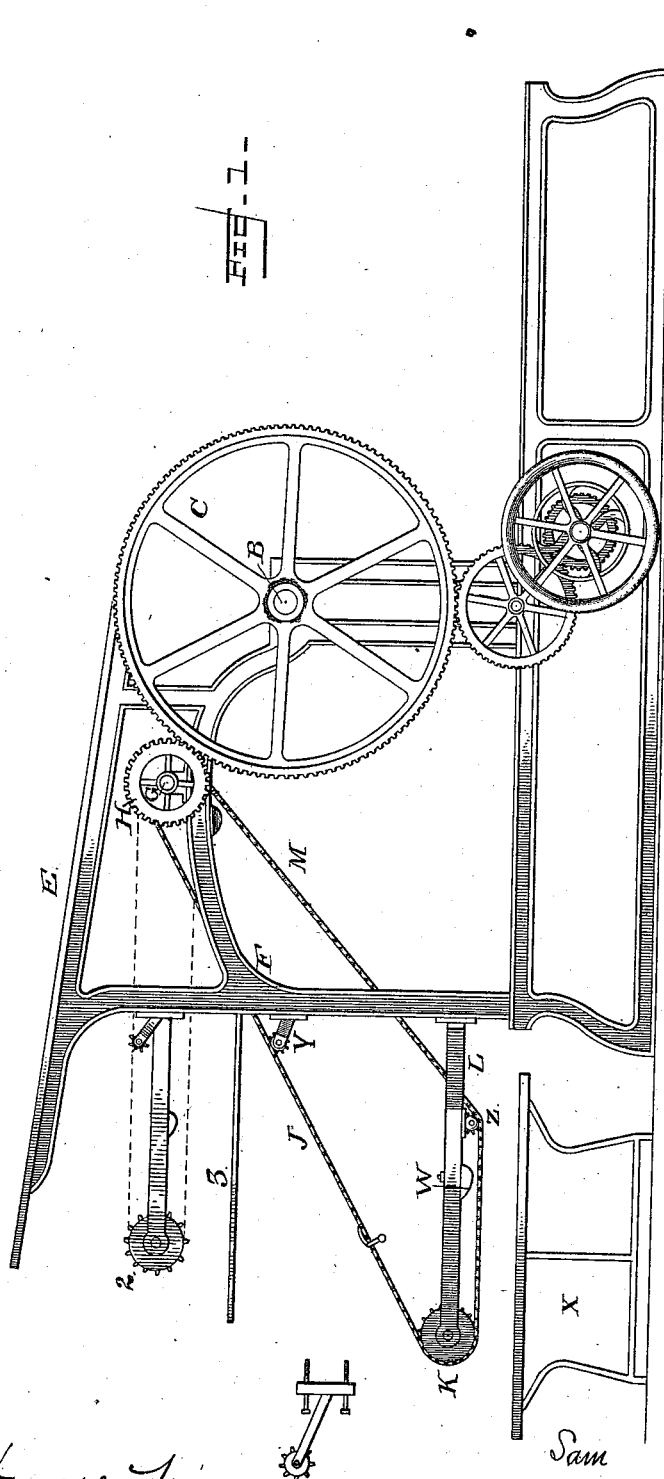
2 Sheets—Sheet 1.

S. D. SANDEL.

DELIVERY APPARATUS FOR PRINTING PRESSES.

No. 492,054.

Patented Feb. 21, 1893.



Witnesses

Chas. Duval, Jr.  
Geo. W. Harvey

Inventor  
S. D. Sandel,  
by Samuel D. Brock  
Attorney

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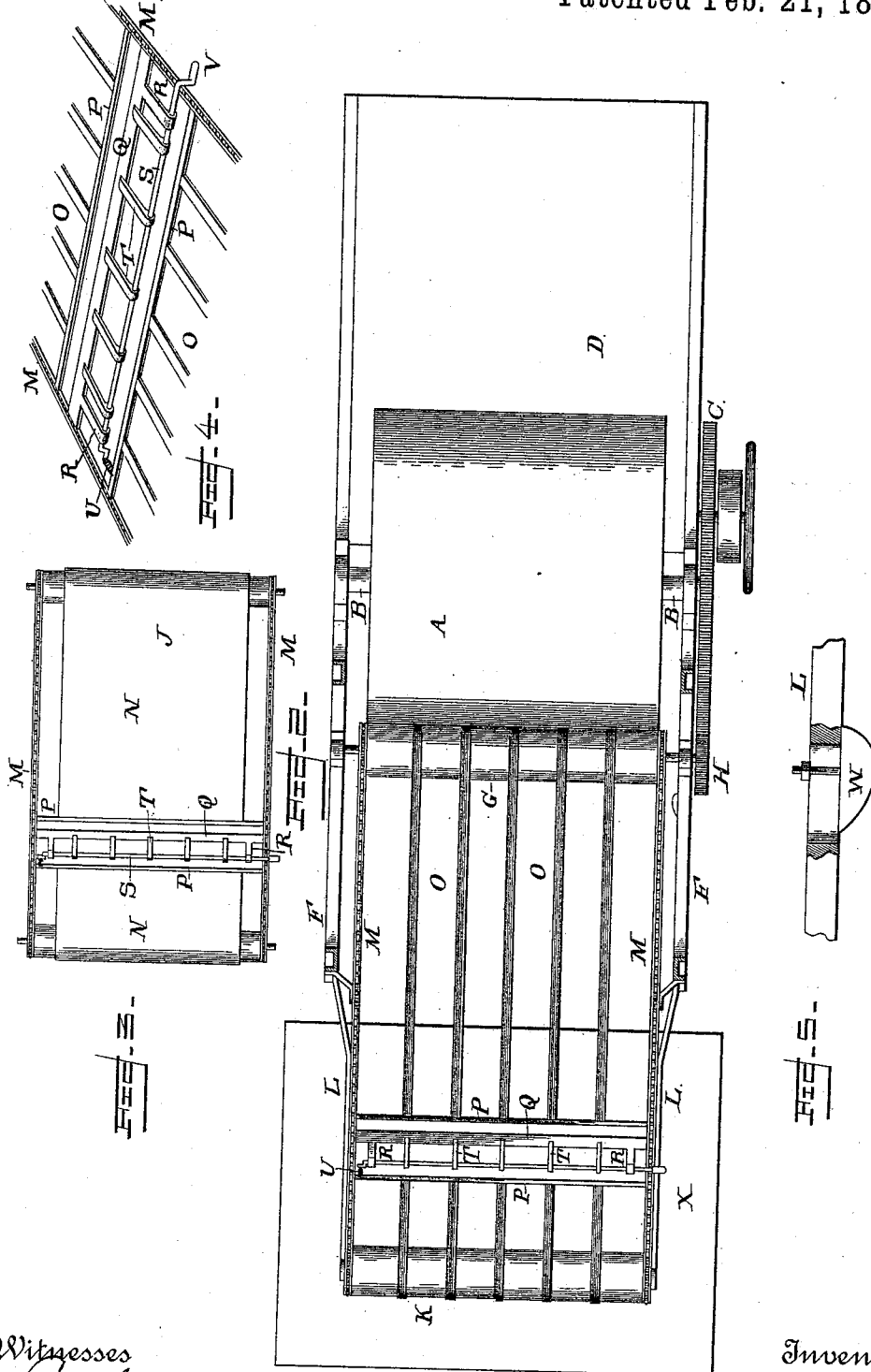
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Geo. W. Harvey

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S. D. Sandel,  
by Fenelon B. Brock  
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# UNITED STATES PATENT OFFICE.

SAM D. SANDEL, OF AUSTIN, TEXAS, ASSIGNOR OF ONE-HALF TO A. B. MILLER, OF SAME PLACE.

## DELIVERY APPARATUS FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 492,054, dated February 21, 1893.

Application filed September 9, 1892. Serial No. 445,411. (No model.)

*To all whom it may concern:*

Be it known that I, SAM D. SANDEL, a citizen of the United States, residing at Austin, in the county of Travis, State of Texas, have invented certain new and useful Improvements in Delivery Apparatus for Printing-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of a cylinder printing press to which I have applied my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a plan view of a modified form of my invention. Fig. 4 is a detail perspective view of the gripper bars. Fig. 5 is a detail view of one of the operating cams.

My invention relates to printing presses.

The object of my improvements is to provide an endless band or apron paper-delivery apparatus, for printing presses, which will automatically take the sheets of paper from the cylinder and deliver them upon the usual table, in an orderly pile, as will be hereinafter more fully described.

With this purpose in view my invention consists in the following construction and combination of parts, which will first be fully described in detail and the features of novelty contained therein then pointed out and claimed.

In the drawings—A represents the cylinder of a printing press.

B is the main shaft and C, the main gear, keyed to the shaft B.

D is the bed of the press, and E, the table supported by the usual standards F.

G is a cylindrical roll mounted in suitable bearings on the standards F.

H is a gear rotating with the cylinder G, fast thereon which meshes with the gear C, for transmitting the movements of the cylinder A and the gear C to the cylinder G, so as to cause the latter and the apron J to rotate in the direction shown by the arrows.

K is another cylinder or roll mounted upon

the brackets L projecting rearwardly from the standards F, so as to rotate therein. M are endless chains or bands, which travel over suitable sprocket or other wheels mounted upon the cylinders G and K so as to receive and transmit the motion from the press to the endless band delivery apparatus.

This delivery apparatus may be of a single width of fabric, as shown at N Fig. 3, or it may consist, and I prefer it the latter way, of a series of endless tapes O running over the cylinders G and K. In either case the band or tapes are secured adjacent to their meeting ends to two parallel transverse rods or bars P, carried by the chains M on either side, as shown particularly in Figs. 2, 3, and 4.

Q is another rod or bar carried by the chains M, which have projecting arms or bearings R within which is journaled an oscillating rod S.

T are gripper-fingers rigidly secured to the rod S so as to vibrate therewith. Normally these fingers rest upon and engage the bar Q being held in that position by a spring U secured to one of the bars P and to a cranked end of the oscillating rod S. The other end of rod S has also a crank arm V which is arranged to come in contact with a cam W on the projecting brackets L, so as to momentarily open the gripper fingers, and deposit each successive sheet upon the table X.

Another cam is placed upon the press adjacent to the main cylinder A in order to open the gripping fingers as they pass in juxtaposition to the cylinder, so as to receive each successive sheet of paper by its forward edge, the gripper fingers again closing instantly by the action of the spring and carrying the sheet along the tapes in the direction of the arrows, to be deposited successively upon the table X.

Y and Z are two auxiliary rolls mounted respectively upon the standards F and brackets L for giving proper tension to the tapes or for taking up any sag therein, they are however not essential and may be dispensed with if desired.

In the action of my invention each sheet is taken from the cylinder and delivered with a positive action, which permits no accident to the delivery apparatus and prevents any smirching of the printed sheet.

My invention will also lay the papers straight and orderly upon the table to any practicable height.

I are bracket supporting arms similar to  
5 brackets L, and serve to support a second cylinder and gear 2, over which the apron or tapes may run so as to deliver the printed paper upon the upper shelf or table 3.

I claim—

10 In a press, the combination of endless bands or chains, two cross rods secured to said bands, apron tapes secured at their opposite ends to said cross rods, an intermediate cross rod having journaled arms extending in a line with  
15 the apron, an oscillating rod hung in said

arms having gripper fingers and provided with a crank end projecting inwardly beyond the endless bands, a press frame, brackets projecting outwardly therefrom, delivery rolls mounted on the frame and on said brackets, 20 and cams similarly mounted so as to lie in the path of the inwardly projecting crank on the end of the oscillating cross rod.

In testimony whereof I affix my signature in presence of two witnesses.

SAM D. SANDEL.

Witnesses:

I. H. BRYANT,

W. B. WALKER.