

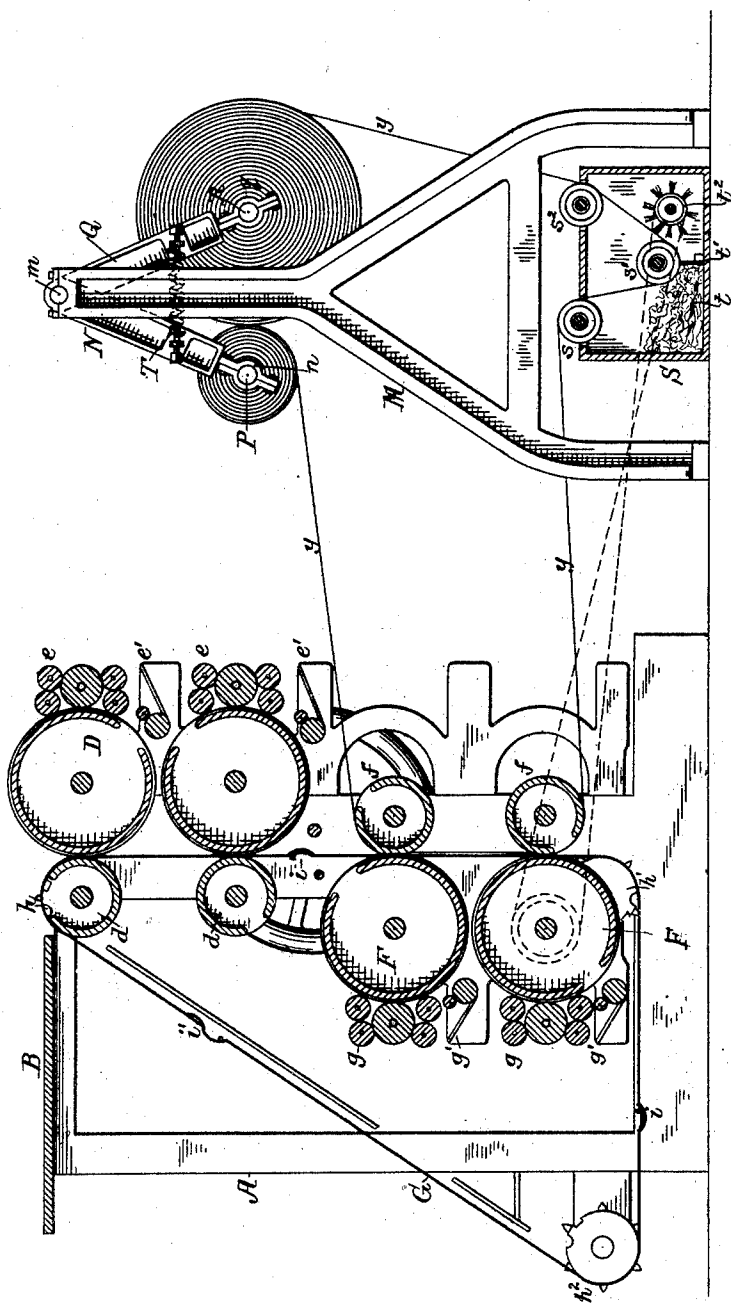
(No Model.)

W. H. R. TOYE.

OFFSET MECHANISM FOR PRINTING MACHINES.

No. 503,391.

Patented Aug. 15, 1893.



Witnesses:

R. Schleicher.

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by his Attorneys

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UNITED STATES PATENT OFFICE.

WILLIAM H. R. TOYE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE SIMULTANEOUS CHROMO-
GRAVURE PRINTING MACHINE AND MANUFACTURING COMPANY, OF
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OFFSET MECHANISM FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 503,391, dated August 15, 1893.

Application filed October 5, 1888. Serial No. 287,307. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. R. TOYE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Offset Mechanism for Printing-Machines, of which the following is a specification.

The object of my invention is to so construct the mechanism for operating and feeding the
10 set-off sheet of a printing press, that there will be an even tension throughout, a further object of the invention being to drive one roll of paper from the other by frictional contact so that a regular movement of the paper is obtained
15 as fully described hereinafter.

My invention is especially applicable to printing presses for printing in one operation both sides of a sheet of paper. After one side of the sheet has been printed by the printing
20 mechanism and the sheet passes to the mechanism for printing the opposite side, if it were not for the set-off sheet inserted between the tympan of the impression cylinder and a sheet of paper, the impression on the sheet of paper
25 would be transferred to the tympan, and in many cases blur the sheet and this impression on the tympan would be transferred onto and spoil the sheets fed into the machine, after the impression was made.

30 The view in the accompanying drawing illustrates a printing press embodying my invention.

A is the frame of the machine.

B is the feed table.

35 D, D, are the first type cylinders, and d, d , are the impression cylinders, situated directly opposite the cylinders D, D, the press shown in the accompanying drawing being a color printing press where two or more colors are
40 printed on both sides of the paper during one passage of the paper through the machine.

e, e , are the inking rollers for each of the type cylinders, and e', e' , are the fountains. The paper passes through the machine in a
45 vertical line x, x , and directly under the impression cylinders d, d , are type cylinders F, F, which print upon the opposite side of the

sheet, and directly opposite these type cylinders are the impression cylinders f, f .

$g—, g—$, are the inking rollers for the cylinders F, and $g'—$ are the fountains for the same. 50 All the cylinders and rollers are mounted on suitable spindles or shafts journaled in bearings on the frame A of the machine and are driven in any suitable manner.

55 Passing between the cylinders D and d , and the cylinders F and f , is an endless belt G, which passes around sprocket wheels h, h', h^2 , and on this belt are suitable paper clips i , which grasp the paper as it is fed from the table B 60 and carry it between the cylinders. These clips are operated automatically after the sheet has passed between the cylinders, so as to deliver the printed sheet onto the delivery table.

65 The details of construction of the above devices are fully set forth in the application for Letters Patent filed by me May 28, 1888, Serial No. 275,346.

I will now describe the mechanism for feeding the set off sheets between the printed sheet 70 of paper and the impression cylinders.

M is a frame supporting at its upper end a shaft m on which are suspended arms N, having at their lower ends bearings n for the spindle P of the roll of set off paper to be fed to 75 the machine.

Q, Q are two arms also pivoted to the shaft m and having bearings $q—$, at their lower ends, and adapted to which is a spindle R, on which the paper is to be rolled after passing through 80 the machine. The paper $y—$ passes from the spindle P over the impression cylinders f, f , and then over a small roller s having its bearings in the present instance, in the box S. This box contains the cleansing substance such as 85 benzine, talc, or other cleansing mixture. The set off paper then passes into the box around a roller s' so as to be forced in contact with the cleansing substance marked t . A knife edge t' rests against the under side of the paper removing any lumps from the paper. 90 The paper then passes up around a roller s^2 out of the box and to the spindle R on which it is wound. As the paper passes from the roller

s' to the roller s² it comes in contact with the brush t², which in the present instance is a rotary brush and driven from the printing machine. Thus it will be seen that after the paper passes between the impression cylinder or cylinders and the paper to be printed, it receives an impression from the previously printed paper, but as the set off sheet passes into the box S this impression is removed by the cleansing devices so that when it is rolled upon the spindle it is comparatively clean, and when dry, is fit to be used again as a set off sheet.

It will be understood that the set off sheet may be of paper, linen, or other material, as circumstances suggest.

The arms N and Q are connected together through the medium of a spring T, adjustable so as to regulate the tension. Thus the spring will draw the two arms together causing the paper on the delivery spindle to press against the paper on the receiving spindle; when the paper is drawn through the printing machine it will pass the spindle P, and the paper on this spindle being in frictional contact with the paper on the spindle R, will tend to rotate this spindle and wind the paper upon it, keeping an even tension at all times upon the set off sheet, as it will be understood that as the roll of paper on the delivery spindle decreases, the roll of paper on the receiving spindle in-

creases, and by frictional contact of the outer surface of the rolls the speed of the receiving cylinder will be varied accordingly.

I claim as my invention—

1. The combination in a printing machine, of the delivery drum carrying the set off paper to be fed from the drum by the printing machine, with a receiving drum on which the set off paper is wound, said receiving drum being driven from the delivery drum by friction, substantially as set forth.

2. The combination of the delivery shaft and receiving shaft for the set off paper, with a spring for drawing one toward the other, so that as the paper is unwound from the delivery shaft, the paper will be wound upon the receiving shaft by friction, substantially as set forth.

3. The combination of the frame, arms N, N, pivoted thereto carrying the delivery roll for the set off sheet, arms Q, Q, also pivoted to the frame and carrying the receiving roll, with a spring connecting the arms N and Q, substantially as and for the purpose set forth.

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

WILLIAM H. R. TOYE.

Witnesses.

F. R. HARDING,
GEORGE E. VICKERS.