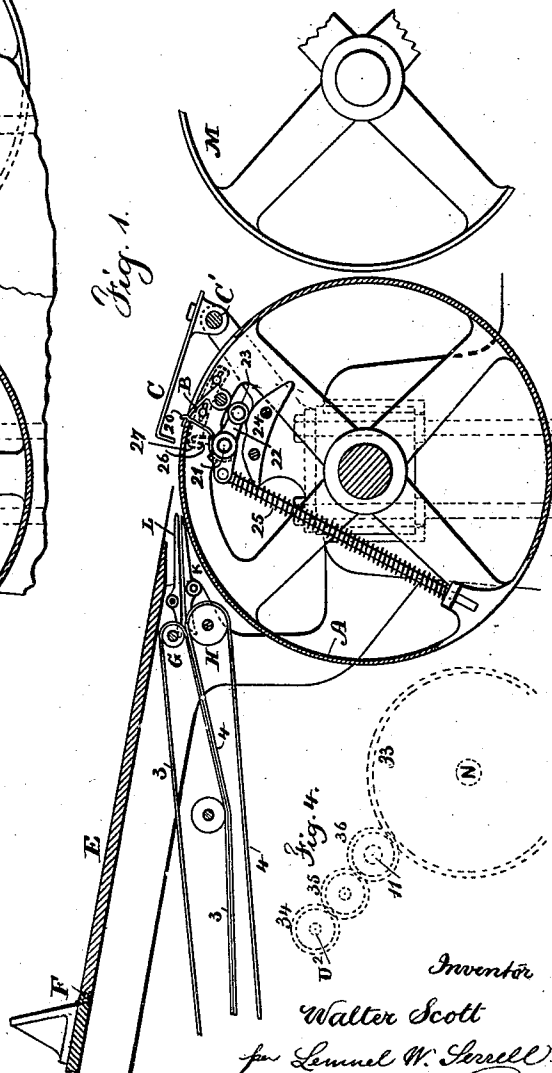
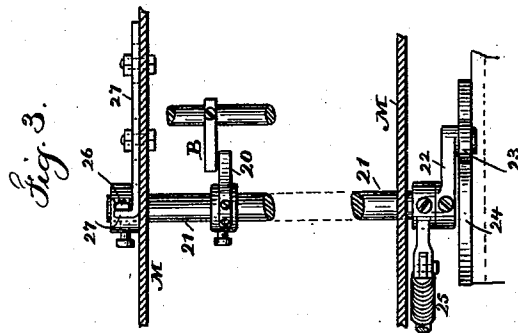
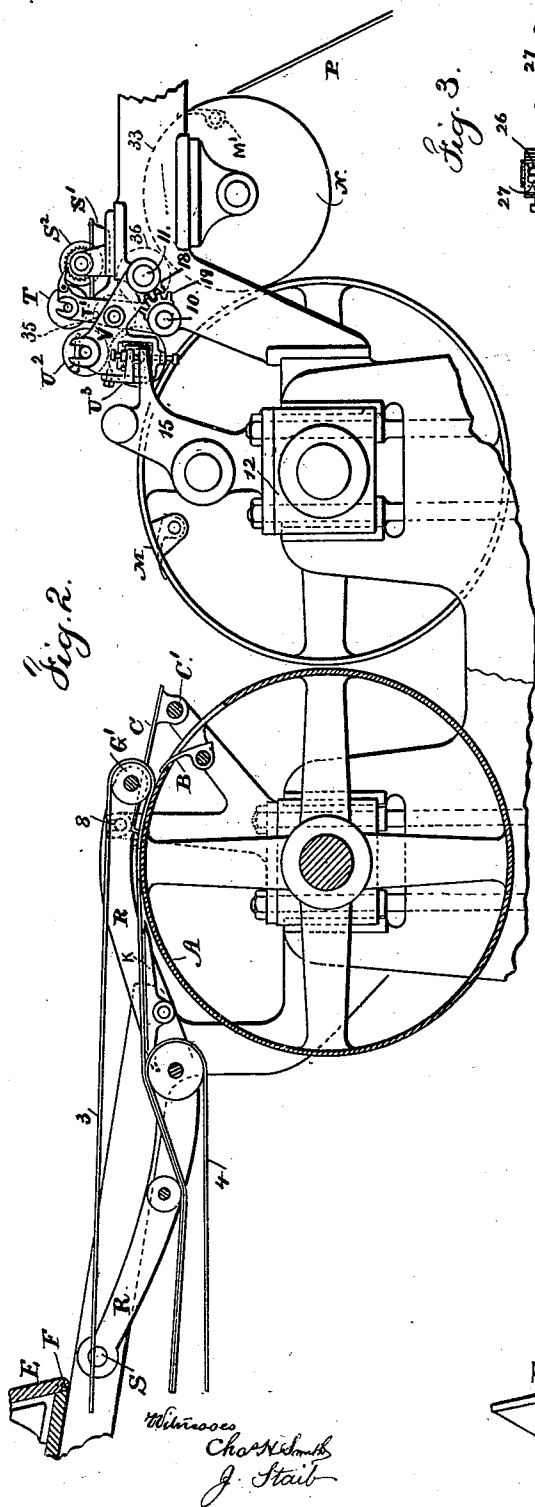


(No Model.)

W. SCOTT.
PRINTING PRESS.

No. 549,259.

Patented Nov. 5, 1895.



Inventor
Walter Scott
per Lemuel W. Merrill

UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 549,259, dated November 5, 1895.

Application filed March 10, 1890. Serial No. 343,317. (No model.)

To all whom it may concern:

Be it known that I, WALTER SCOTT, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Printing-Presses, of which the following is a specification.

In an application, No. 342,902, of like date herewith and filed March 6, 1890, I have described means for supplying sheets to a printing-press, either from a web that is cut off automatically as it passes into the press or from a table, the sheets being fed in by hand.

My present invention is a modification of the device set forth in said application and relates to the feeding in of the sheets automatically from a web beneath the feed-board, so that the automatic feeding mechanism is out of the way of the hand-feeding devices, and either one or both of these devices can be made use of simultaneously, and such feeding devices can be employed with an impression-cylinder in a rotary press or with the two impression-cylinders in a flat-bed or perfecting press; and in the delivery of the printed sheets from the press the sheet is carried away as it rises from receiving the second impression, thus leaving the upper part of the second-impression cylinder unoccupied and adapted to oiling rolls that are made use of to prevent the offset of the ink upon such impression-cylinder, and in feeding in the sheet automatically the advancing end of such sheet is adjusted accurately by automatic fingers prior to being seized by the grippers.

In the drawings, Figure 1 is a diagrammatic view representing my feed mechanism in a simple form, one of the impression-cylinders being partially in section. Fig. 2 is a similar view representing tapes that may act upon the margins of the sheet that is fed in automatically, such tapes holding the advancing sheet to the impression-cylinder until the grippers close upon the same. Fig. 3 is a diagrammatic view, partially in section, representing the device for adjusting the advancing end of the sheet; and Fig. 4 indicates the train of gearing that may be used.

The impression-cylinder A is provided with grippers B, as usual, and above the same is a fence or gage C upon a shaft C', and this fence or gage is raised at the proper time, as usual

in printing-presses, and the feed-table E is adapted to rest upon the frame of the press with its lower end adjacent to the surface of the impression-cylinder A, and this feed-table E is hinged at F, so that it may be swung back to give access to the parts that are ordinarily beneath it.

The sets of belts 3 and 4 pass around the rolls G H and they bring the paper along in sheets as cut from a roll by any usual mechanism and the sheets pass in between the bridge-bars K and L, and the mechanism of the press is to be so timed that the sheets, as delivered by the sets of tapes or belts 3 and 4 between the bridge-bars K L, reach the grippers B at the proper time to be grasped by the same, and the gage C is lifted out of the way of the advancing end of the sheet, so that one or two sheets, back to back, can pass in simultaneously from between the sets of belts 3 and 4 and the sheets are received by the grippers B and printed upon, and either a single sheet may be printed as it passes below the cylinder A and is delivered in any suitable manner, or the single sheet or two sheets may receive two impressions as such sheet or sheets pass first around the impression-cylinder A and then are thrown off and taken by the grippers and pass around the second-impression cylinder M, and are delivered therefrom, preferably, by the cylinder N, (shown in Fig. 2,) that is adjacent to the second-impression cylinder M and between the same and the fly-rack P or other suitable delivering or folding mechanism, and it is to be understood that on this cylinder N there are grippers M', receiving the advancing end of the sheet as it is thrown off from the second-impression cylinder M, and these grippers open to allow the advancing end of the sheet to pass down the bars P of the fly-frame, or to any other suitable delivery mechanism.

A single sheet can be fed in by hand from the feed-table E and receive one impression on one side, or two impressions, one on each side, or two sheets can be delivered to the impression-cylinder A from the table E to be printed upon as one product, one sheet being printed on one side and the other on the other side, or a sheet may be carried into the press automatically by the sets of tapes or belts 3 and 4 and pass under and be carried in with a

sheet that has been fed by hand from the table E against the gage C, thus greatly increasing the capacity of the press and allowing the covers of pamphlets to be printed at the same time as some of the sheets, and also allowing for two qualities of paper being introduced easily into the press, either simultaneously or separately.

When the sheets are being delivered automatically into a perfecting-press as cut from a roll, it is difficult to insure the accurate position of the end of each sheet, and the margins are liable to vary in consequence of the slight inequalities in the forwarding movements of the tapes or belts. To rectify this difficulty I adjust the press in such a manner that the advancing end of each sheet is slightly too much in advance to be properly taken by the grippers, and I provide automatic fingers 20, that project nearly radially from the cross-shaft 21 of the impression-cylinder, and these fingers pass in between and close to the grippers B; and upon one end of the cross-shaft 21 is an arm 22, with a roller 23, that comes into contact with the cam 24, which cam is stationary and attached upon the frame of the press, and there is a spring 25 to press the roller 23 toward the cam 24. The shape of this cam 24 is illustrated in Fig. 1, and as the cylinder A revolves the roller 23 runs up the cam 24 and brings the automatic fingers 20 into a nearly radial position, their ends projecting slightly beyond the surface of the impression-cylinder; and this occurs at the proper time in the revolution of the press as the sheet is fed in automatically by the sets of belts 3 and 4, and the roller 23 now rises upon the portion of the cam 24 farthest away from the axis of the impression-cylinder, and in so doing the fingers 20 press back the advancing end of the sheet slightly. As these fingers 20 are adjacent to the grippers B and act immediately before the grippers close, the advancing edge of each sheet is accurately placed by the automatic fingers and held in position until the grippers close and seize the sheet, after which the roller 23 passes down the incline of the cam 24 and the fingers 20 swing backwardly out of the way and their ends come inside the periphery of the impression-cylinder, so as not to come into contact with any portion of the press or types; and I remark that if the advancing end of the sheet is pressed back, even as much as a quarter of an inch, the sheet will not be wrinkled, because a slight tension is always applied to the sheet as it is drawn out from between the bridge-bars and the sets of belts before the advancing end of the sheet reaches the form or printing-cylinder, so that the sheet is smooth when printed upon and is properly held by the grippers.

Upon the cross-shaft 21 is an adjustable stud or finger 26, adjacent to the L-shaped end of the stop 27, which stop is fastened upon the end of the impression-cylinder by bolts passing through slots, and by adjusting this

stop 27 and the finger 26 upon the shaft 21 the position assumed by the automatic fingers 20 can be ascertained by the attendant upon turning the shaft 21 by hand, regardless of the action of the cam 24, which is a convenience in adjusting the parts of the press and in determining the width of the margin at the advancing end of the sheet, so as to properly place the form on the bed of the press in relation to the edge of the sheet.

The devices shown in Fig. 2 are the same as those referred to in Fig. 1, with the exception that I have represented the sets of tapes or belts 3 as passing along to the roller G', such roller G' being held between the arms R, that are pivoted at S to the frame of the machine, so that such arms may be swung back out of the way upon the hinges S, carrying with them the tapes or belts 3, so as to uncover the first-impression cylinder A, and when turned down the studs 8, passing into the notched portions of the frame, support the arms R in their proper positions for the belts 3 to forward the advancing end of the sheet over the top of the impression-cylinder A, it being understood that the tapes or belts 3 4 are running at the same surface speed, or nearly so, as the surface speed of the cylinder A. The mode of operation of this device is the same as before described, only it is usual to throw back the gages or stops C when the automatic feed and cutting mechanism is in action.

In connection with the second-impression cylinder M, Fig. 2, I have represented the oil-holder S' with a roll S², moved by a ratchet and pawl and a ductor-roll T upon the vibrating arms T', and these arms T' are pivoted at 10 upon the frame of the machine, and there are oiling-rolls U² U³ held in a frame V, that is pivoted at 11 upon the frame of the machine, and there is upon the journal-box 12 of the second-impression cylinder M an arm 15, acting against a set-screw upon the arms V, so that the roller U³ can be adjusted in its pressure and contact with the second-impression cylinder M, and it will remain in contact as this cylinder M is raised and lowered, as usual in perfecting-presses, and there are sector-teeth 18 upon the arm V, adjacent to the teeth 19 upon the arm T'. Hence as the frame V is swung upon its axis 11 the arms T' are swung upon their cross-shaft 10, and as the arms T' receive their motion the ductor-roller T is carried from contact with the roll S² into contact with the roll U² and the reverse, and I prefer to keep the rolls U² and U³ constantly in rotation by the train of gearing 34 35 36 to the wheel 33 upon the axis of the delivery-cylinder N, (see Fig. 4,) so that the oil will be rapidly and equally distributed upon the surface of the rolls U² and U³ and upon the surface of the second-impression cylinder M, in order to prevent any offset of the printers ink upon such impression-cylinder.

It is to be understood that the frames V and

the lifters 15 are provided at each end of the rolls U^2 U^3 , but it is only necessary to have gear-teeth 19 and 20 at one end and two arms T' upon the cross-shaft 10 for giving a swinging movement to the ductor-roll, as before described.

I claim as my invention—

1. The combination with the impression cylinder A and the feed table E of the sets of tapes or belts 3 and 4 and their rollers G H and the bridge bars K L below the feeding table E substantially as specified so that sheets can be fed in automatically from a roll or by hand, separately or jointly, substantially as set forth.

2. The feed table E hinged at F and capable of being swung back and the gage C in combination with the impression cylinder A and grippers B and the sets of tapes or belts 3 and 4 and their rolls G and H and the bridge bars beneath the feed table E substantially as set forth.

3. The combination with an impression cylinder having grippers, of a feed board having its lower edge adjacent to the impression cylinder but sufficiently above for sheets to pass in beneath, endless tapes or belts beneath the feed board for supplying the sheets automatically and bridge bars for directing the advancing ends of the sheets, substantially as set forth.

4. The combination with the impression cylinders A and M and the delivery cylinder N and their grippers, of the oil trough S' above the second impression cylinder M the rolls S^2 U^2 and U^3 the frames V pivoted at 11 for supporting the arbors of the rolls U^2 U^3 the lifter 15 the levers T' the ductor roll supported by such levers, and the gear teeth 18 and 19 for giving motion to the ductor roll, substantially as set forth.

5. The combination with an impression cylinder having grippers, of a feed board having its lower edge adjacent to the impression cylinder but sufficiently above for sheets to pass in beneath, endless tapes or belts beneath the feed board for supplying the sheets automatically and bridge bars for directing the advancing ends of the sheets, and hinges upon which the feed board can be swung up to give access to the endless tapes and bridge bars, substantially as set forth.

6. The combination with the second impression cylinder in a perfecting press, of the oiling rollers and the frames carrying the same and receiving motion from the journal

boxes of the impression cylinder as the same are moved up and down, and a stationary oil holder and a roller in the same for supplying oil to the oiling rollers, substantially as set forth.

7. The combination with the impression cylinder and the oiling rollers in contact with the same, of the oil holder, a roller in the oil holder, a ductor roller, arms supporting the ductor roller and segmental teeth and frames for giving motion to the arms of the ductor roll as the impression cylinder is raised and lowered, substantially as set forth.

8. The combination with the impression cylinder and grippers, of automatic fingers acting against the advancing end of the sheet adjacent to the grippers, and a cross shaft and cam for giving motion to the automatic fingers in the reverse direction to the movement of the cylinder to press back the end of the sheet before the grippers are closed, substantially as set forth.

9. The combination with the revolving impression cylinder and grippers, of fingers 80 upon the cylinder projecting above the surface of the same to form a gage for the sheet, and mechanism for moving the fingers in the reverse direction to the movement of the cylinder and grippers to press the sheet into position prior to being grasped by the grippers, substantially as specified.

10. The combination with the impression cylinder and grippers and automatic means for supplying sheets at or near the same surface speed as the impression cylinder, of automatic fingers on the impression cylinder and adjacent to the grippers for adjusting the position of the ends of the sheets before the grippers are closed, substantially as set forth.

11. The combination with the impression cylinder and grippers, of fingers upon the impression cylinder and automatic means for moving the same to adjust the ends of the sheets, a feed board with its lower end adjacent to the impression cylinder, and endless belts below the feed board for feeding the sheets automatically, whereby the separate sheets or pairs of sheets are adjusted to the grippers, substantially as set forth.

Signed by me this 28th day of February, 1890.

WALTER SCOTT.

Witnesses:

GEO. T. PINCKNEY,
HAROLD SERRELL.