

(No Model.)

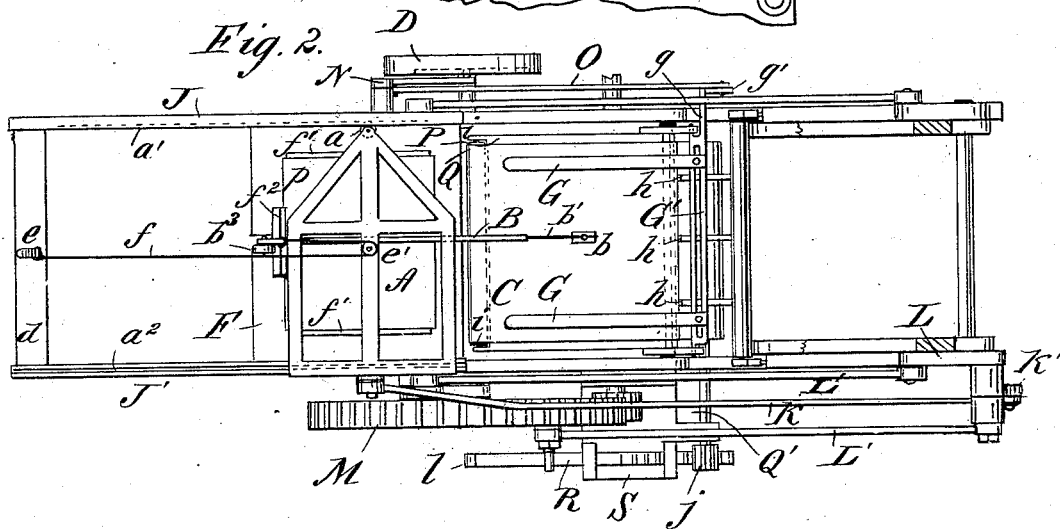
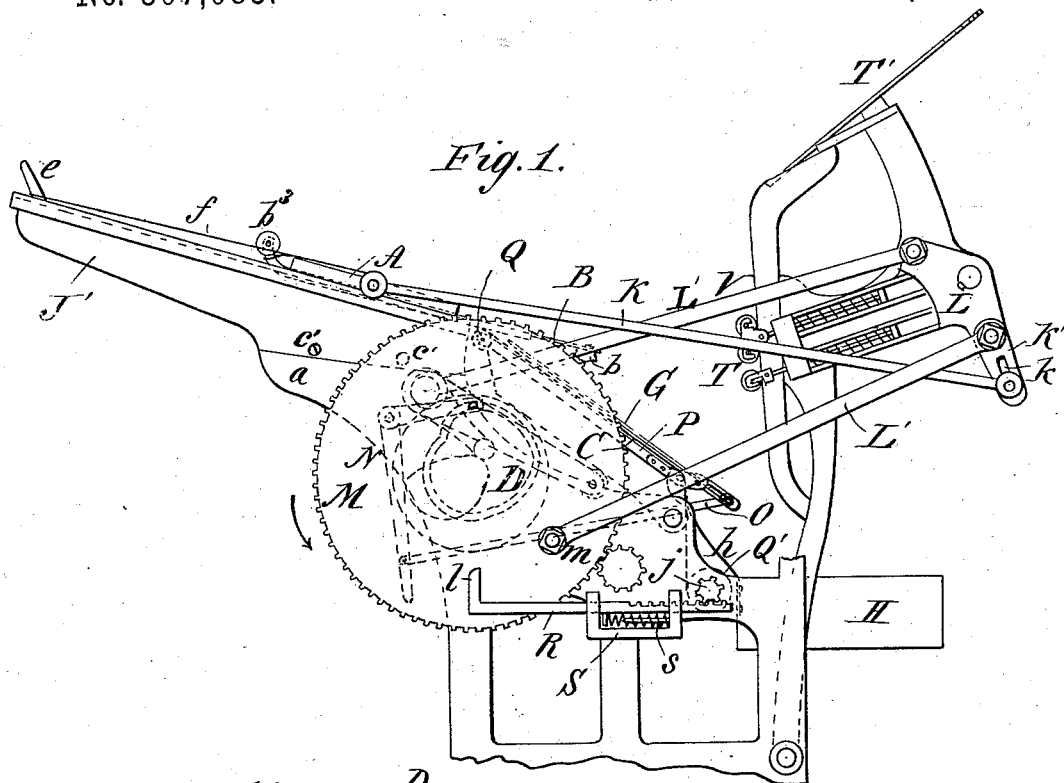
2 Sheets—Sheet 1.

A. R. BENNETT.

AUTOMATIC PAPER FEED FOR PRINTING PRESSES.

No. 307,083.

Patented Oct. 28, 1884.



WITNESSES:

Donn Twitchell.
B. G. Underwood.

INVENTOR:

A. R. Bennett.

BY

Munn & Co.

ATTORNEYS.

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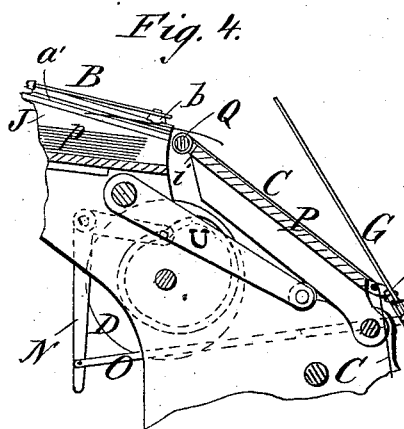
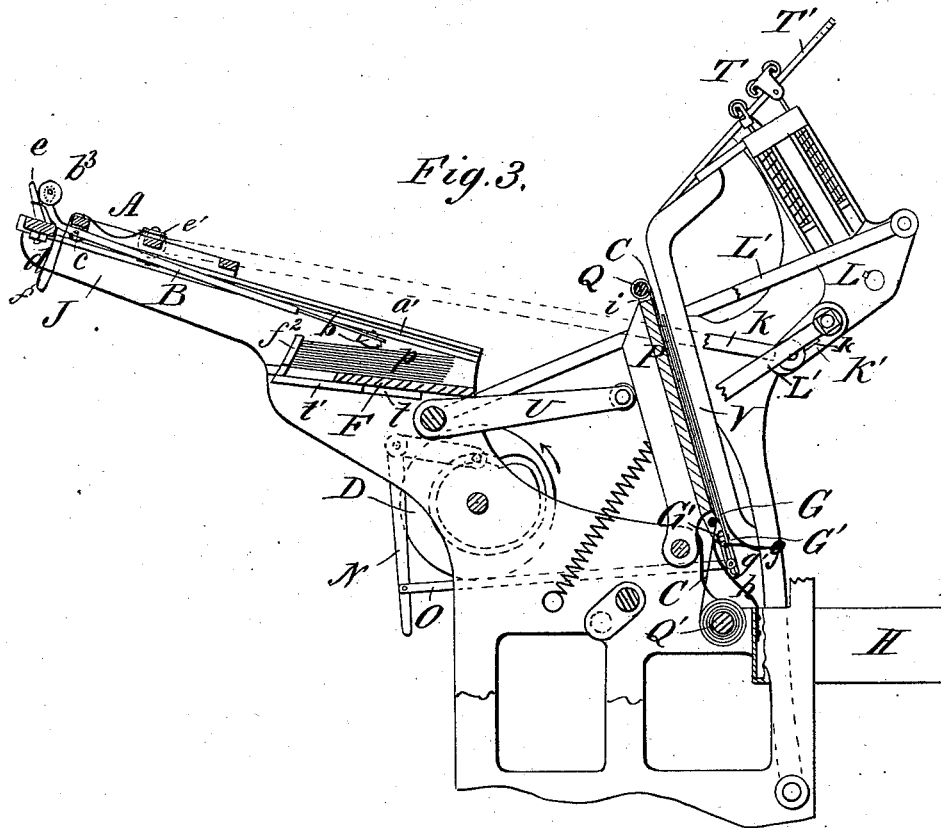


Fig. 5.

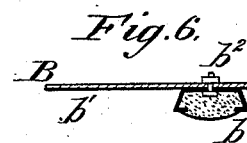
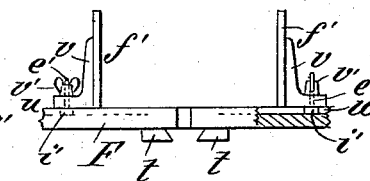
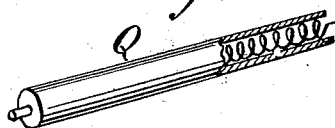


Fig. 7.



WITNESSES:

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INVENTOR:

A. R. Bennett.

BY

Munroe & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ANDREW R. BENNETT, OF UTICA, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE BENNETT AUTOMATIC PRINTING PRESS FEED COMPANY, OF SAME PLACE.

AUTOMATIC PAPER-FEED FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 307,083, dated October 28, 1884.

Application filed July 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, ANDREW R. BENNETT, of Utica, in the county of Oneida and State of New York, have invented a new and Improved Automatic Paper-Feed for Printing-Presses, of which the following is a full, clear, and exact description.

The object of this invention is to devise practical means whereby oscillating printing-presses may be made self-feeding.

The invention consists of sundry combinations and arrangements of parts, substantially as hereinafter fully set forth and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of an ordinary Gordon oscillating printing-press having my invention applied thereto, the parts being shown in the position they assume at the time the type are being inked by the inking-rollers. Fig. 2 is a sectional plan view of the same. Fig. 3 is a sectional elevation showing the parts of the press and my improvements in the position they assume at the time the impression is made. Fig. 4 is a detailed sectional side elevation showing the gripper-movement. Fig. 5 is an end elevation, partly in section, of the support or box in which is placed the papers to be printed on. Fig. 6 is a detailed view of a part of the feeding-arm and the pad, and Fig. 7 is a broken perspective view of the winding-shell for the discharging-web.

A represents the reciprocating frame to which the feeding-arm B is pivoted. This feeding-arm B is provided at its forward end with the spring b' , and to the forward end of this spring b' is attached, by the screw b'' , the pad b of gelatine or other adhesive compound or material.

C represents the discharging-web, for discharging the printed sheets from the platen P of the printing-press.

D represents the cam for operating the grippers G G.

F represents the support, having the ad-

justable walls f' and f'' , for holding the paper p to be printed; and H represents the box or receptacle having the guide-fingers $h h$, for receiving the printed sheets from the discharging-web C.

The frame A is made pointed at one end, as shown in Fig. 2. At this pointed end it is provided with the friction-wheel a , which runs in a groove, a' , formed in the inner surface and near the upper edge of the side plate J. The square end of the frame A has a groove formed in its under side, which fits upon a tongue, a'' , formed upon the upper edge of the side plate J', and this frame A is connected by the connecting-rod K and arm K' to the ink-roller lever L, so that when this lever L is operated from cog-wheel M, through connecting-rod L', in the ordinary manner the frame A will be reciprocated in and upon the said side plates, J J'. The feeding-arm B is placed under the frame A, and is pivoted thereto at c , (shown clearly in Fig. 3,) so that the feeding-arm B reciprocates with the frame A, and the distance of movement of the frame A and the feeding-arm B may be regulated, as required for the size of the sheets of paper to be printed, by moving the forward end of the connecting-rod K in the slot k , made in the arm K', as will be understood from Fig. 1, and the movement of the frame A should always be so regulated that when drawn to the limit of its forward movement the forward end of the feeding-arm B will reach over the platen P to the position shown in Fig. 1 for placing the sheets properly upon the platen under the grippers G G, and when moved backward to the limit of its movement will carry the forward end of the feeding-arm B back of the platen to the position shown in Fig. 3, so that the pad b will come over the pile p of blank paper placed upon the support F. The rear end of the feeding-arm B is provided with the friction-wheel b' , and this is of such weight that it serves also as a counter-weight to the forward end of the feeding-arm, so that normally the forward end of the feeding-arm B will be held elevated in a plane with the under side of the frame A, as shown in Fig. 1.

Back of and in line with the feeding-arm B is held, in the cross-piece *d*, the backwardly-inclined stud *e*. This is for the purpose of causing the forward end of the feeding-arm B to be depressed at the proper time upon the pile of paper *p*, for causing the pad *b* to lift a sheet of paper, as illustrated in Figs. 3 and 4, ready for carrying it forward over the platen P.

In order to cause the feeding-arm B to be again depressed at the end of its forward movement for placing the sheet of paper upon the platen P, I attach to the rear end of the feeding-arm B one end of the cord *f*, and then pass this cord over the pulley *e'*, attached to the center of the frame A, and lead the cord from thence back and attach it to the stud *e*, as shown in Fig. 2, whereby, when the frame reaches the limit of its forward movement, the cord will be so drawn upon by the action of the pulley *e'*, as it recedes from the stud *e*, as to cause the cord to pull upon the rear end of the feeding-arm, which will have the effect to depress the forward end of said arm, and allow it to deposit upon the platen its sheet of paper.

The grippers G G are in all respects like the ordinary form of grippers, except that the slotted and pivoted bar *G'*, to which they are attached, is formed or provided with the extension *g*, to which is attached the crank *g'*, by which the grippers are operated from the cam D through the medium of the bell-crank lever N and connecting-rod O. (Shown clearly in Figs. 1, 3, and 4.)

The discharging-web C forms a close-fitting covering for the upper surface of the platen P. The web C is a foot and a half or two feet in length. It is attached at its upper end to the winding roller or shell Q, which is journaled in the lugs *i i*, formed upon or attached to the upper corners of the platen P, and at its lower end the web C is attached to the winding drum or shaft Q'. The roller or shell Q is made hollow, and is provided upon the inside with a spring arranged to act like the spring in a balanced shade-roller for constantly holding the web C taut over the surface of the platen P, and for permitting it to be drawn off by drum or shaft Q', as next described, for discharging the printed sheets into the box or receptacle H.

The lower end or edge of the web C is, as above stated, attached to and wound upon the winding drum or shaft Q', which is journaled below the lower edge of the platen P, as shown clearly in Fig. 3, and this shaft Q' is provided at one end with the pinion *j*, which meshes with the rack R. This rack R is held in the frame S at the side of the press, and is formed at its rear end with the upwardly-projecting toe *l*, with which the wrist-pin *m* of the cog-wheel M is adapted to engage as the cog-wheel M revolves for forcing the rack R forward in the frame S. This forward movement of the rack R will cause the pinion *j* and shaft Q' to revolve at the proper time—just after each impression—and this revolution of the shaft

Q' will draw the web C off from the shell Q and cause it to carry forward the printed sheet and drop it into the receptacle H. As soon as the wrist-pin *m* shall have passed the toe *l*, the spring within the shell Q will act to wind the web C again upon the shell Q as far as the shaft or drum Q' will permit, and at the same time cause the rack R to slide back to its original position. To assist this backward movement of the rack R, I provide the separate spring *s*, placed in the frame S, which is compressed by the forward movement of the rack R, and reacts upon it as soon as the wrist-pin *m* passes the toe *l*.

The box or receptacle H, for receiving the printed sheets, is held in the main frame of the printing-press just below and in front of the platen P, and the arms *h h*, which are attached to the rear end of the box, reach up to and rest against the web C, so as to receive and guide the printed sheets from the web C into the box H, thus preventing all danger of the sheets being drawn under the press by the movement of the web C.

The support F for the paper *p* is held between the side plates, J J', by the screws *e' e'*. Upon its under side this support F is provided with the dovetailed cleats *t t*, between which the bevel-edged arm *t'* of the rear board, *f'*, fits for holding the said board in position for holding the pile of paper *p*, as shown in Fig. 3.

In the upper surface of the support F are formed what are designed to be dovetailed grooves *u u*, (shown clearly in Fig. 5,) in which grooves the heads *i' i'* of the bolts *e' e'* fit, said heads in practice being beveled to conform to the surface of the groove. These bolts pass through the bracket-pieces *v v*, and these bracket-pieces are attached to the side boards, *f' f'*, which side boards serve to hold the pile of blank paper *p* from sidewise movement upon the support F, as will be understood from Figs. 2 and 5. The side boards, *f' f'*, by loosening the thumb-nuts *v' v'* of the bolts *e' e'*, may be adjusted upon the support F to suit the size of the sheet of paper to be printed, and the rear board, *f'*, may also be moved between the cleats *t t* to suit the size of the paper *p* to be printed.

In operation, a blank sheet being in place upon the web C on the platen P, and held by the grippers G G as the inking-roller lever L is drawn forward by the cog-wheel M and connecting-rod L', for carrying the inking-rollers T upon the ink-plate T', the frame A and feeding-arm B will be forced backward upon the side pieces, J J', by the action of the arms K' and connecting-rod K, which movement will bring the rear end of the arm B against the stud *e*, which will cause the forward end of the arm B to be depressed and bring the adhesive pad *b* down upon the pile of paper *p*, as shown in Fig. 3. In the meantime the platen P will have been raised by the action of the arms U of the press and the impression of the type, held upon the bed V of

the press, taken, the upward movement of the delivery-web C (resulting from the difference in the arcs described in the movements of the web and platen, due to the different locations of the pivotal point of the platen and the lower web-cylinder) being prevented from displacing the paper by reason of the holding action of the grippers exerted upon the paper. Now, upon the backward movement of the lever L for bringing the inking-rollers T over the bed V for inking the type, the platen P will descend to receive the next blank sheet. At this time the gripper-arms G G, through the action of cam D, bell-crank lever N, extension g, and crank g', will be raised off from the sheet just printed. By this time the wrist-pin m will have reached the toe l of the rack R, so that the further revolution of the cog-wheel M will move the rack R forward, which will cause the drum or shaft Q' to revolve, which will draw the web C off from the winding-shell Q and cause the web to discharge the printed sheet into the box H. The wrist-pin m now having passed the toe l, the spring-actuated-shell Q will act to return the web C, and also, together with the springs s, to return the rack R and drum or shaft Q'. While these operations of the web, gripper, platen, &c., are being accomplished, the arm K' and connecting-rod K will have begun to draw the frame A and feeding-arm B forward with a continuous movement. Upon leaving the stud e the weight of roller b' will cause the forward end of the feeding-arm B to be lifted, which, owing to the adhesiveness of the pad b, will lift a sheet of the paper off from the pile p, and, the forward movement of the frame A and arm B continuing, this lifted sheet will be carried by the feeding-arm over the platen P and under the gripper-arms G G. The sheet having reached the proper point, the gripper-arms will again be operated as above stated, causing them to grasp the blank sheet of paper and hold it upon the web C and platen P. Now, the lever L will again be drawn forward by cog-wheel M and connecting-rod L', and the frame A and feeding-arm B will again be

forced backward by arm K' and connecting-rod K, and the platen P will again be raised to print the sheet now held upon it by the grippers G G, and this having been done the parts will repeat the motions just described, and all of the motions described will be repeated with the printing of each sheet. In this manner it will be seen that the feeding of the press is entirely self-acting, so that the press requires no attention but to supply it with the blank sheets in a pile.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a feeder for printing-presses, the feeding-arm B, pivoted to the reciprocating frame A, and having the spring b', provided with the gelatinous pad b, in combination with the stud e, for depressing the forward end of the feeding-arm to bring the pad into contact with the piles of paper, substantially as set forth.

2. The arm K', attached to the inking-roller crank, in combination with the reciprocating frame A and connecting-rod K, substantially as and for the purposes set forth.

3. The arm K', attached to the inking-roller lever and slotted, as shown at k, in combination with the frame A and connecting-rod K, substantially as and for the purposes set forth.

4. The feeding-arm B, pivoted to the reciprocating frame A, in combination with the stud e, for depressing the forward end of the feeding-arm for bringing the pad b into contact with the pile of paper, substantially as and for the purposes set forth.

5. The feeding-arm B, pivoted to the reciprocating frame A, in combination with the stud e and cord f, attached to the rear end of feeding arm, and passed around pulley e' and attached to stud e for depressing the forward end of the arm B, for placing the sheets upon the platen to be printed, substantially as described.

ANDREW R. BENNETT.

Witnesses:

J. FRANK. ROGERS,
WM. E. HARTER.