2 Sheets—Sheet 1.

C. B. COTTRELL.

Printing-Press.

No. 205,357. Patented June 25, 1878.

Fig. 1.

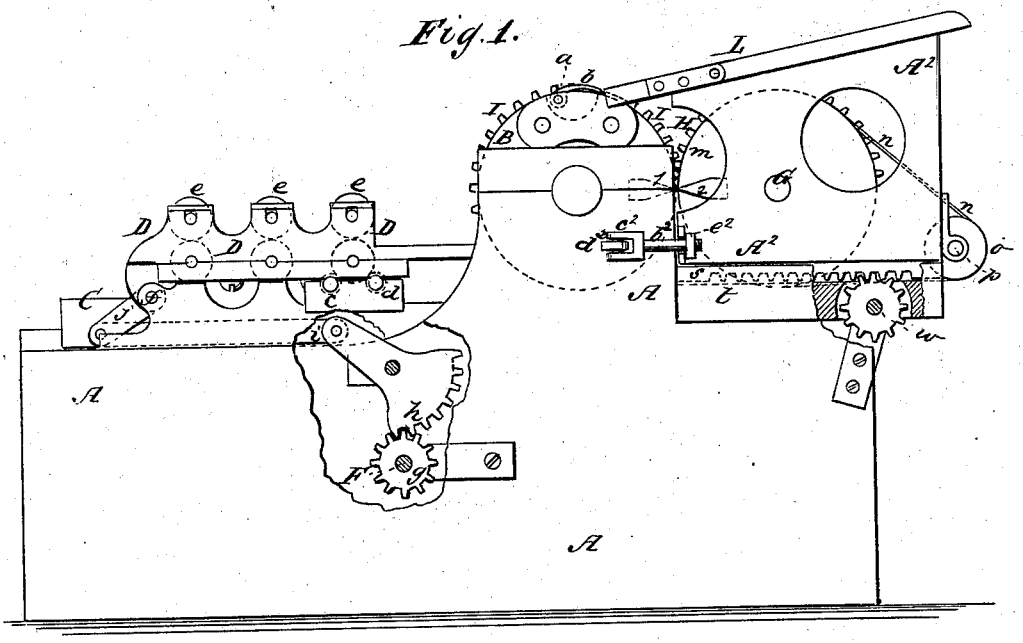
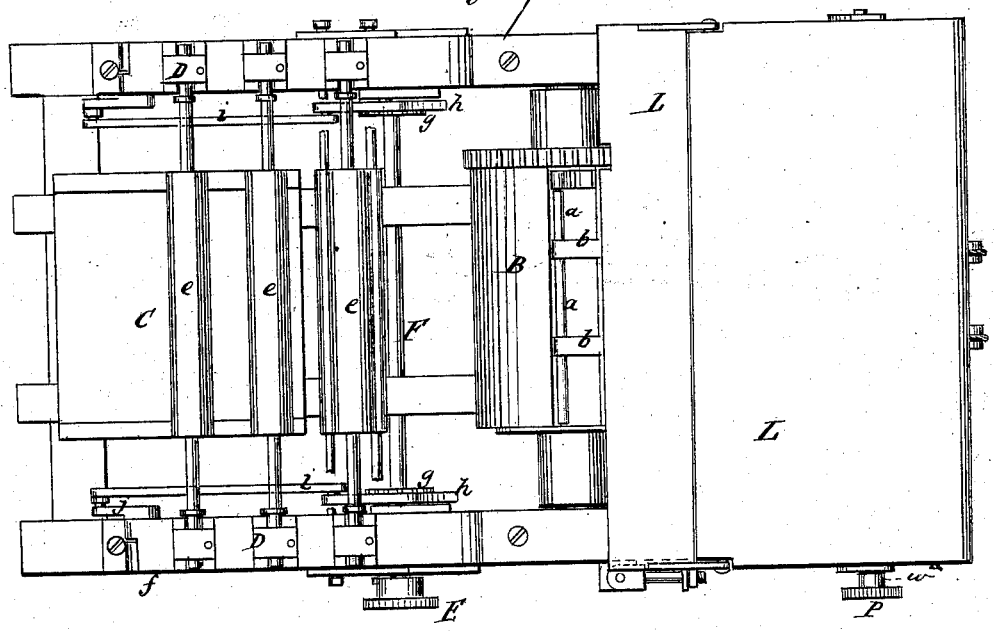


Fig. 2.



Witnesses:
E. Wolff.
Jacob Felbel

Inventor:
C. B. Cottrell
By his attorney
E. N. Mc Intire

2 Sheets—Sheet 2.

C. B. COTTRELL.
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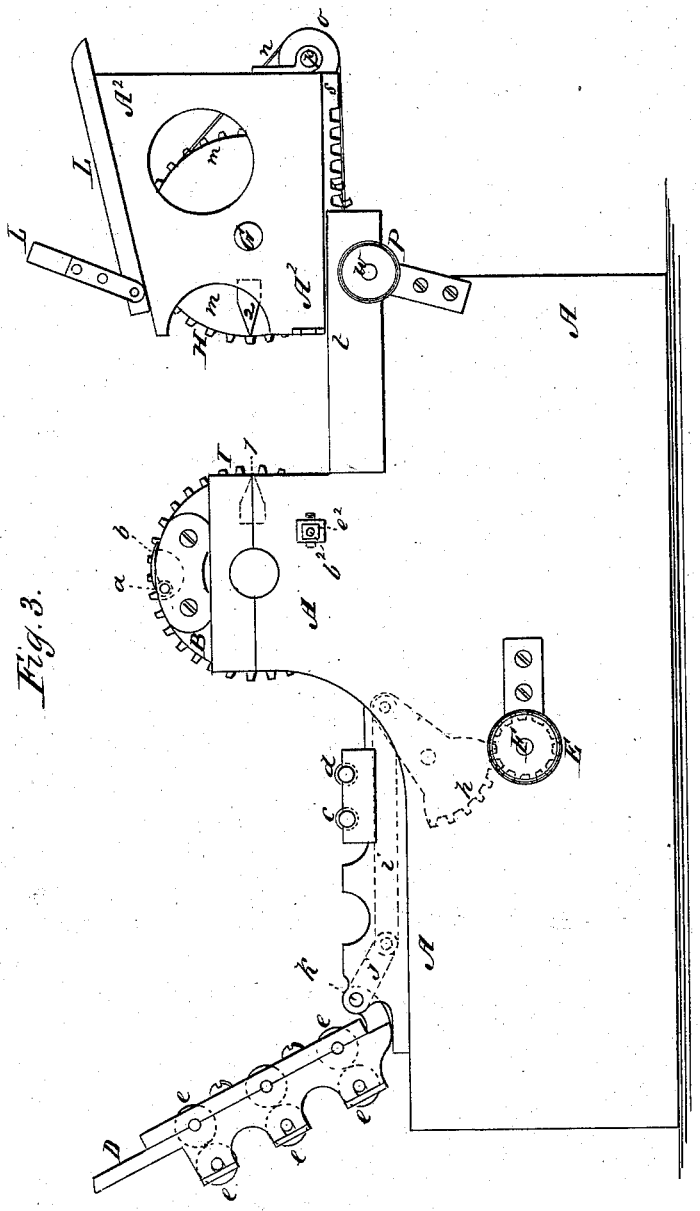

Fig. 3.

Witnesses:
E. Wolff.
Jacob Felbel

Inventor:
C. B. Cottrell
By his attorney
L. A. McGuire

UNITED STATES PATENT OFFICE.

CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **205,357**, dated June 25, 1878; application filed May 27, 1876.

To all whom it may concern:

Be it known that I, CALVERT B. COTTRELL, of Westerly, in the county of Washington, in the State of Rhode Island, have invented certain new and useful Improvements in Printing-Presses; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In printing-presses as heretofore constructed it has been exceedingly inconvenient and difficult to get at the impression-cylinder to arrange the hard packing, to fix the overlays, &c., on account of the close proximity to said cylinder of the delivery mechanism and feed-board, and any contrivance or construction by which a free access to the impression-cylinder may be had by the pressman (so that he might with more facility arrange or adjust the hard packing and overlays) must be a great desideratum.

I propose to make the machine so that the pressman may, without hinderance, have free and full access to the impression-cylinder; and to carry out this idea is the object of the first part of my invention, which, to this end, consists in mounting the delivery mechanism, feed-board, &c., in or upon an auxiliary frame or frame-work which is capable of movement, either bodily or upon a pivot or hinge, in such manner that all the parts in rear of and adjacent to the impression-cylinder may, at the pleasure of the workman, be shifted or moved entirely out of the way, as will be hereinafter more fully described.

Another objection to presses as heretofore generally constructed has been the inconvenience consequent to the necessity of removing the rolls above the ink-rollers, in order to get at the latter for the well-known purposes; and though this objection has been in a great measure overcome by an invention lately patented to me, in which the vibrating distributers and other rolls located over the ink-rollers are hung in an auxiliary movable frame, so that by moving said frame all of said rolls may be lifted up out of the way, there still remains the objection of having to move the frame and rolls directly by hand, and in machines in which there are numerous rolls to be lifted or moved the labor is considerable.

I propose now to entirely obviate the objections in this regard to presses; and to this end and object the second part of my invention consists in having the vibrating distributers and other rolls located over the ink-rollers arranged in a swinging or other movable frame, and in having combined with said frame a mechanism by which, through the medium of a hand wheel, crank, or lever, the operator can, with ease and rapidity, move the said frame with its accompanying rolls out of the way.

To enable those skilled in the art to make and use my invention, I will proceed to more fully describe it, referring by letters to the accompanying drawings, in which—

Figure 1 is a side elevation of a press embodying my several improvements. Fig. 2 is a top view of the same; and Fig. 3 is an elevation similar to Fig. 1, but representing the parts in different conditions, the delivery mechanism being shifted out of the way to make room for the pressman to readily get at the impression-cylinder, and the auxiliary roller-frame being thrown up and forward to expose the ink-rollers, so that they may be conveniently taken out.

In the several figures the same part will be found designated by the same letter of reference.

A represents the usual frame or main frame-work of the machine, in which are mounted in the ordinary manner all the working parts, except the rolls located over the ink-rollers and the feed-board and delivery mechanism, which are arranged in auxiliary frames, in a manner and for purposes to be presently explained.

B is the impression-cylinder, with its griper-shaft *a* and fingers *b*, constructed and operating in the usual manner; and C is the reciprocatory bed, which is driven back and forth in any of the known modes, and which, if the machine be a "stop-cylinder," is made to properly rotate the cylinder B.

In front of the impression-cylinder B are arranged, as usual, the ink-rollers, mounted in suitable bearings at *c d* in the main frame, and over these rolls are arranged the usual vibrating distributers *e*, and such other rolls

as may be necessary, in an auxiliary frame, D. This frame D is hinged at *f* to the main frame A of the machine, and is manipulated by a hand-wheel or crank-handle, E, through the medium of mechanism which I will now describe.

On the shaft F, running from side to side of the machine, and on one end of which is keyed fast the hand-wheel E, are secured two spur-pinions, *g*, which mesh or engage two sector-levers, *h*, that are pivoted to the frame A of the machine, and to the upper end of each of which is pivoted a connecting rod or bar, *i*, the other end of which is connected to an arm, *j*, made fast to the short shaft or hinge-pintle *k*, about the axis of which the frame D vibrates.

By means of this combination of devices, arranged as shown, the frame D may be raised into the position seen at Fig. 3, or lowered into its normal position, as seen at Fig. 1, by simply turning in one or the other direction the hand-wheel E.

In rear of the impression-cylinder is located a shaft, G, which is provided near one end with a gear, H, that meshes with the gear I of the drum B, and on which are mounted the delivery-wheels *m*, which, in conjunction with their tapes *n* and tape-wheels *o* of shaft *p*, receive and carry off to the fly in the usual manner the printed sheets. But these last-named shafts, and, in fact, all the delivery mechanism and parts immediately in rear of the impression-cylinder, instead of being mounted in the main frame A, are mounted in or carried by an auxiliary frame, A^2, which is arranged to slide back and forth horizontally, as I will presently explain.

L is the usual feed-board, which is made in two parts, and so that its hinged forward portion may be turned up out of the way, as seen at Fig. 3, so that it is not necessary to slide the auxiliary frame A^2 so far back as it otherwise would be in order to get all the parts sufficiently distant from the impression-cylinder to allow the pressman free access to the latter.

The auxiliary frame A^2, that carries the feed-board and delivery mechanism, is formed or provided with ways *s*, as shown, which move in grooves formed in the upper edges of the portion *t* of the main frame, and these ways have teeth cut in their lower faces that engage with spur-pinions keyed fast to the shaft *w*. This shaft is mounted in suitable bearings in the main frame, and is provided with a hand-wheel, P, or handle, by means of which it may be conveniently rotated in either direction.

To insure the retention of the auxiliary frame A^2 in place during the running of the machine, I have provided locking devices or catches, each composed, as shown, of a screw-rod, b^2, the bifurcated end c^2 of which is pivoted or hinged to a lug, d^2, projecting from the side of the frame A, and which has a nut e^2, and a slotted lip-piece, f^2, secured to the forward lower portion of the sliding frame A^2.

When the parts of the machine are adjusted in running order, as seen at Fig. 1, the nut e^2 being screwed home against the slotted projecting lip-piece f^2, the main frame A and auxiliary frame A^2 are securely and inseparably locked together; but by slightly loosening the nut e^2 the fastening-rod b^2 may be turned out, and the frame A thus be left free to slide back.

The general operation of the machine when in operation to do the printing is, of course, the same as others, and needs no special explanation here.

Whenever it is desirable to get at the ink-rollers for their removal or the extrication of a sheet drawn in, or for any purpose, the attendant simply takes hold of the hand-wheel E, and, by a partial revolution of said wheel, throws the frame D, containing all the rolls located over the removable ink-rollers, up into the position seen at Fig. 3.

It will be seen that, by the combination with the hinged frame D of some such mechanism as shown, the pressman can, with slight effort and most expeditiously, elevate or throw up out of the way all the upper rolls to get at the ink-rollers and form.

Many changes may be made in the mechanism shown for accomplishing the results aimed at without departing from the spirit of this part of my invention, the gist of which rests in the combination, with the movable frame, in which are mounted the rolls that work over the ink-rolls, of a mechanism, adapted to operate substantially in the manner hereinbefore described, for moving the said frame.

Whenever it is desired to get at the impression-cylinder B to fix the hard packing or tympan and arrange the overlays, &c., the pressman simply unlocks or unfastens the auxiliary frame A^2, and, taking hold of the hand-wheel P, gives it a partial turn, whereby the said frame with all its parts is run back into the position seen at Fig. 3, and in this position, with the feed-board turned up, a sufficient space is opened in rear of the impression-cylinder to allow the man to get in back of the cylinder and most conveniently work at it.

It will be understood that, in lieu of having the auxiliary frame A^2 made and arranged to slide back, as shown, it may be made to tip back on hinges, or may have any other desirable movement, and that it may be moved by other devices than the racks and pinions shown, the gist of this part of my invention resting in having the delivery mechanism, feed-board, and other appliances usually mounted in the same frame with the impression-cylinder located in an auxiliary and movable frame, substantially in the manner shown and described, so that all these parts can be at pleasure moved away from the impression-cylinder and brought back into an operative relation with said cylinder, as set forth; and, further, in the combination, with such auxiliary movable frame and the main frame, of means, substantially such as shown and described, by which the described movements of the auxiliary frame and its appurtenances may be easily and quickly effected by the pressman.

It is, of course, necessary to have the gears re-engage in a proper manner after the separation of the parts, and to insure this any suitable gage or guide may be employed, such, for instance, as shown, composed of pointers or indicating-fingers or marks 1 and 2 on the ends of the impression-cylinder and delivery-cylinder or end wheel, by which the operator may be enabled to insure the readjustment properly of the separated mechanisms.

Having so fully explained my invention that any skilled person can make and use a machine embodying my several improvements, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the movable frame in which are mounted the rolls that work over the ink-rolls, a mechanism, substantially as described, for moving said frame, the combination being and operating substantially as specified.

2. In combination with the main frame and impression-cylinder of the press, the auxiliary movable frame carrying the feed-board, delivery mechanism, and other appurtenances, the combination being and operating as specified, for the purpose set forth.

3. In combination with the main frame carrying the impression-cylinder and other usual parts, and the auxiliary movable frame carrying the feed-board, delivery mechanism, and other necessary appurtenances, the mechanism, substantially as described, for moving the auxiliary frame from and toward the impression-cylinder on the main frame, all substantially as shown and described.

In witness whereof I have hereunto set my hand and seal this 17th day of May, 1875.

C. B. COTTRELL. [L. S.]

In presence of—

J. N. McINTIRE,

JACOB FELBEL.