

No. 677,910.

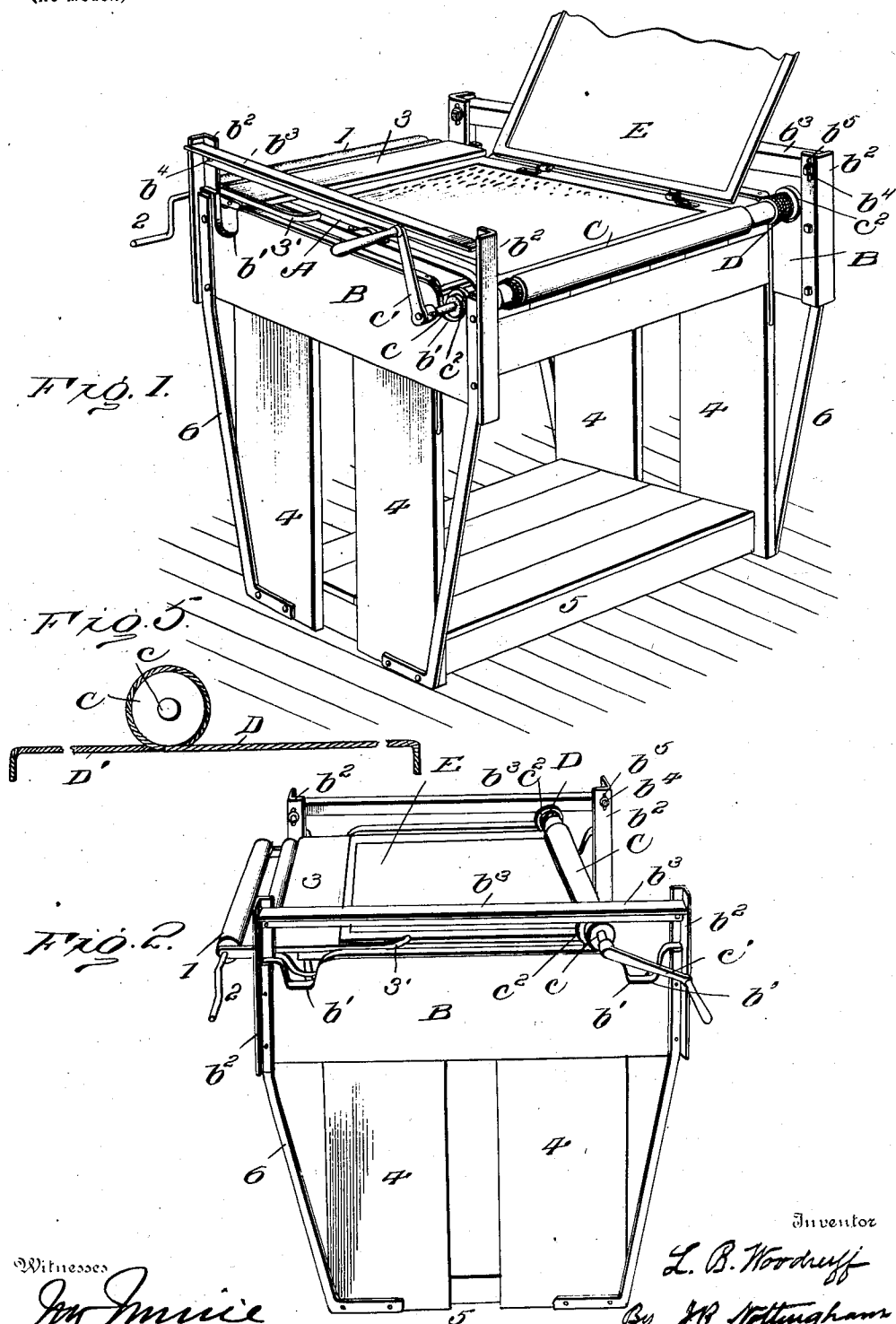
Patented July 9, 1901.

L. B. WOODRUFF.  
HAND CYLINDER PRINTING PRESS.

(Application filed Dec. 20, 1899.)

2 Sheets—Sheet 1.

(No Model.)



Witnesses

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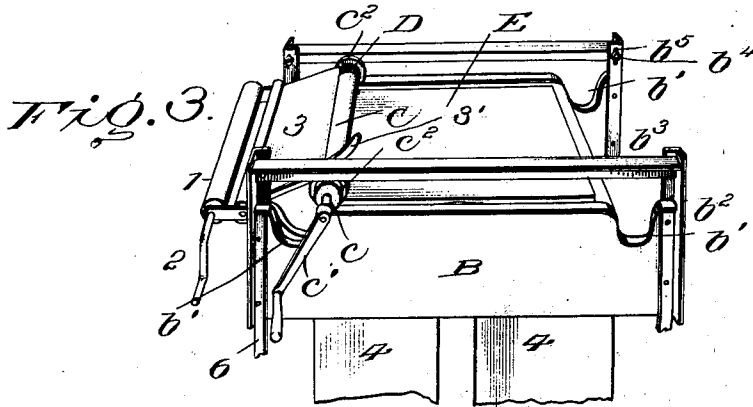
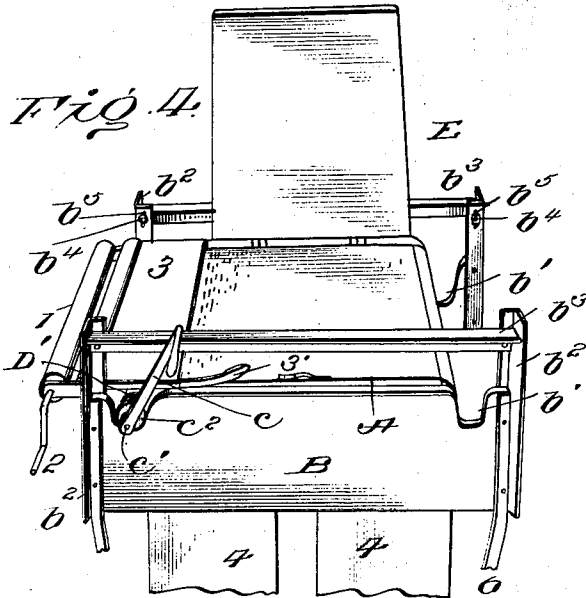
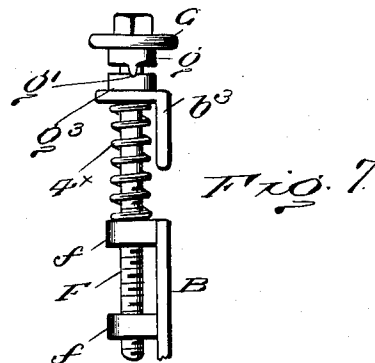
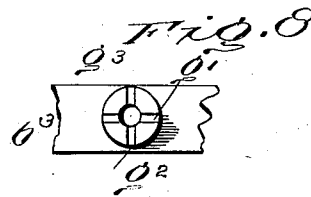
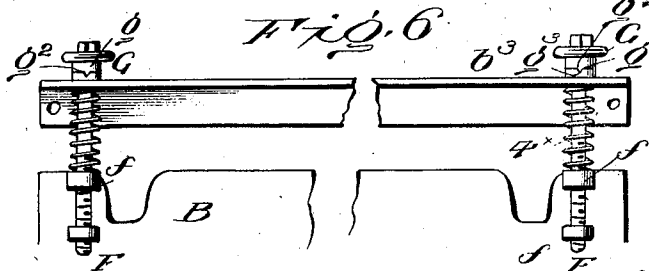
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2 Sheets—Sheet 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## HAND CYLINDER PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 677,910, dated July 9, 1901.

Application filed December 20, 1899. Serial No. 741,043. (No model.)

*To all whom it may concern:*

Be it known that I, LESLIE B. WOODRUFF, a citizen of the United States, residing at San Miguel, in the county of San Luis Obispo and State of California, have invented certain new and useful Improvements in Hand Cylinder Printing-Presses; and I do hereby 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.

My invention relates to that class of hand cylinder printing-presses in which the impression is made by means of a cylinder rolling over a form of type placed upon a flat bed; and it consists generally in the novel combination and arrangement of the various parts, as will be hereinafter more fully described, and particularly set forth in the claims.

The primary object of the invention is to produce a machine for letter-press printing that will be simple in construction and rapid in operation.

Another object of the invention is to simplify and cheapen the cost of construction without in any way impairing its efficiency in operation.

Still another object of the invention is to provide for taking proofs from galley-matter.

In the accompanying drawings, Figure 1 is a perspective view of my improved press, showing the frisket up and the impression-roller in one of its normal positions; Fig. 2, a side view in perspective, showing the frisket down and the impression-cylinder in position to make its travels over the bed; Fig. 3, a similar view showing the frisket down and the impression-cylinder in position to pass under the ink-apron; Fig. 4, also a similar view showing the cylinder in its second normal position and the frisket up; Fig. 5, a detail side view of the impression-cylinder and one pair of the cables for controlling it, and Figs. 6, 7, and 8 are enlarged detail views of the means for raising the impression-cylinder when the press is to be used as a proof-press.

In the several views the letter A indicates the bed of the press, to which are firmly bolted the sides B. The upper edge of the sides is provided with depressions or recesses  $b'$   $b'$

and their ends with uprights or standards  $b^2$ . These uprights are connected together by angular impression-rails  $b^3$ , which are vertically adjustable by means of the bolts  $b^4$ , passing through slots  $b^5$  made in the rails to regulate the impression of the cylinder C. This cylinder is covered with felt or other suitable material to present a yielding surface and is mounted on a shaft  $c$ , having a crank  $c'$  at one end thereof. The cylinder is journaled between the upper edges of the sides B and the impression-rails, and its shaft is provided with flanged friction-rollers  $c^2$ , one at each end, which run freely upon the upper edges of said sides. The flanges of the rollers prevent lateral movement of the cylinder and permit said cylinder to freely rotate as it is caused to move back and forth over the bed.

Secured to each end of the impression-cylinder is one end each of a pair of cables D D', the other end of each pair being secured to the ends of the bed A or the sides B, as shown. A portion of each pair of cables is wound around the cylinder, so that when said cylinder is being rotated in one direction one pair of cables D' will be unwinding, while the other pair D will be winding up on the cylinder, as shown in Fig. 1, to cause its return in the other or opposite direction. Thus by turning the crank  $c'$  to the right or to the left the cylinder may be rotated back and forth over the impression-bed.

The letter E indicates the frisket or tympan, upon which is placed the paper to be printed. It is of the usual form and is hinged to one side of the bed, as shown in Figs. 1 and 4.

Any suitable ink-distributing apparatus may be employed with my improved press, but such apparatus should be so positioned that the operating-crank thereof will be within easy reach of the person operating the impression-cylinder, so that he may readily distribute the ink without materially interfering with the printing operation, thus making the operation of the press practically continuous. The ink is conveyed from the ink-distributing rollers to the face of the type by any well-known means—such, for instance, as the ordinary hand-roller. An ordinary form of inking apparatus is shown attached

to the back of the press, in which the numeral 1 indicates one of the ink-distributing rollers, 2 the crank for operating the same, and 3 the ink-apron.

5 The impression-rails hold the impression-cylinder down to the type-form, and being adjustable a lesser or greater degree of impression may be obtained by raising or lowering said rails.

10 The press may be mounted upon any suitable base or support of convenient height, such as the framework shown in the drawings, which consists of the side supports 4 4 and the base 5, strengthened by the braces 15 6 6, or it may be supported upon a table of proper height for convenience in working.

The operation of the press will be readily understood from the foregoing description without further explanation other than to state that the impression-cylinder has two normal positions of rest—one in the recesses  $b'$ , as shown in Fig. 1, and the other in recesses  $b'$ , as shown in Fig. 4. The cylinder when in neither of these positions of rest is out of the way when inking the forms or putting them on or taking them off of the press. By turning the crank  $c'$  to the left the cylinder is caused to rise out of recesses  $b'$ , as shown in Fig. 2, and to travel over the bed until it reaches the point shown in Fig. 3, when it will pass under the ink-apron and drop into recesses  $b'$ , as shown in Fig. 4. The frisket is then thrown up, the printed sheet removed, a blank sheet adjusted, the frisket thrown down, and the operation repeated by turning the crank to the right. Said ink-apron, Fig. 3, which covers the recess  $b'$  where the impression-cylinder rests, serves as a bridge for the inking-roller to pass from the ink-distributing rollers to the type-forms and back and also serves as a protection to the impression-cylinder. The ink-apron is so hinged to the frame of the press that when the cylinder is underneath it the movement of the cylinder upward will raise it up until the cylinder has moved out of the way, when the apron will drop back into place. When the cylinder is returning toward the apron, it passes under and engages an arm attached to one end of said apron and which is so adjusted that when the cylinder has passed beneath arm  $3'$  and reached the recess the apron will have been raised a sufficient height to allow the cylinder to pass under into its position of rest, when the apron will drop into its normal position.

For taking proofs from galley-matter I provide four impression-screws  $F$ , one located at each end of the impression-rails, two being shown in Fig. 6. Each impression-screw is provided with a square or jack-screw head by means of which it may be adjusted and passes down through the top of the impression-rail, the screw-threaded end operating in screw-threaded lugs  $f$ , projecting from the side upright  $b^2$ .

Loosely mounted on each impression-screw

is a hand-wheel  $G$ , which is provided on the inner face of its hub with a lug  $g$ , which is adapted to engage radiating depressions  $g'$  and  $g^2$ , made in a washer  $g^3$ , secured to the impression-rail or in the top of the rail itself. The depressions  $g'$  are of less depth than the depressions  $g^2$ , the former being of a depth just sufficient to engage with the lug  $g$  and prevent the hand-wheel from turning, while the latter is of a depth sufficient to permit said lug to enter its full length. The varying depths of these depressions serve to compensate for the thickness of the bottoms of the galleys from which proofs are to be taken, so that when the lug is in the depressions  $g'$  the impression-rails will be forced down, as shown by the separation between the wheel-hubs and rail-washers  $g^3$ , giving the requisite pressure for the type-forms on the press-bed; but when the lug is in the depression  $g^2$  there will be no separation between the wheel-hubs and rail-washers, as shown in Fig. 7, the rails being permitted to rise sufficient to allow the impression-cylinders to travel over the type on the galleys. Each impression-screw is surrounded by a coil-spring  $4$ , which is interposed between the impression-rail and the upper lug  $f$ . These springs serve to keep the hand-wheel pressed up against the heads of the impression-screws and to hold the impression-rails normally in engagement with the lug  $g$ . The hand-wheels are only operated to allow their lugs  $f$  to engage either of the depressions  $g'$  or  $g^2$ , and they in no wise interfere with the proper adjustment of the impression-screws, as they act independently thereof. The impression-screws may be securely held in their adjusted position by the use of jam-nuts or binding-screws, if desired, to prevent accidental turning.

Various modifications in the construction and arrangement of the various parts of my improved press may be made without departing from the spirit of my invention or sacrificing the principle thereof.

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

1. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, vertically-adjustable impression-rails arranged above the impression-cylinder, so that a variable pressure may be applied to said cylinder to vary the printing impression, and a pair of cables secured to each end of said cylinder, the other ends of each pair of cables being secured to opposite ends of the track, whereby the travel of the cylinder in one direction will cause one set of cables to wind up on the ends of the cylinder and the other set to unwind, and when the cylinder travels in the opposite direction reverse operation of the cables will take place.

2. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the

track, a pair of cables secured to each end of said cylinder, the other ends of each pair of cables being secured to opposite ends of the track, means for moving the cylinder to and fro over the cylinder-bed, and recesses at each end of the track to receive said cylinder, as set forth.

3. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair of cables being secured at the respective ends of the tracks, the impression-rails, means for moving the cylinder over the bed, and recesses at each end of the track to receive said cylinder as set forth.

4. In a printing-press, the combination of the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at the respective ends of the track, vertically-adjustable means arranged above the impression-cylinder, so that pressure may be applied to said cylinder to regulate the printing impression, and rails for moving the cylinder to and fro over the bed.

5. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at the respective ends of the track, vertically-adjustable rails for regulating the impression, means for moving the cylinder over the bed, and recesses at each end of the track to receive said cylinder, as set forth.

6. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at the respective ends of the track, impression-rails above the track, means for vertically adjusting the rails to vary the pressure of the cylinder, and recesses at each end of the track to receive the cylinder, as set forth.

7. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at opposite ends of the track, means for moving the cylinder over the bed, and recesses formed in the sides of the frame,

at opposite ends of the track and below the same, to receive the cylinder, as set forth.

8. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at opposite ends of the track, impression-rails provided with impression-screws, so constructed with grooves and lugs that the rails may be readily adjusted so as to accommodate the thickness of the galley and to vary the impression.

9. In a printing-press, the combination with the sides thereof forming tracks, of an impression-cylinder, a pair of cables secured to each end of the cylinder and to the press-frame at opposite ends of the track, means for moving the cylinder over the track, impression-rails provided with impression-screws, hand-wheels provided with means for engaging depressions of varying depth in said impression-rails, and coiled springs for normally holding the impression-rails and hand-wheels up against the heads of the impression-screws, as specified.

10. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder, a pair of cables secured to each end of the cylinder and to the press-frame at opposite ends of the track, means for moving the cylinder over the track, impression-rails, means for regulating the pressure of the impression-rails to vary the pressure of the cylinder, and independent means to raise and lower said rails to accommodate the thickness of the galley.

11. In a printing-press, the combination with the frame thereof having recesses at one end, and a movable impression-cylinder adapted to enter said recesses, of a hinged ink-apron provided with means operated by the impression-cylinder, whereby the ink-apron is caused to rise so as to permit the said cylinder to enter said recesses.

12. In a printing-press, the combination with a movable impression-cylinder and recesses in one end of the frame, of a pivoted ink-apron carrying an arm, whereby the ink-apron is caused to rise and fall by the impression-cylinder.

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

LESLIE B. WOODRUFF.

Witnesses:

MARGARET G. BARRETT,  
LEE D. CRAIG.