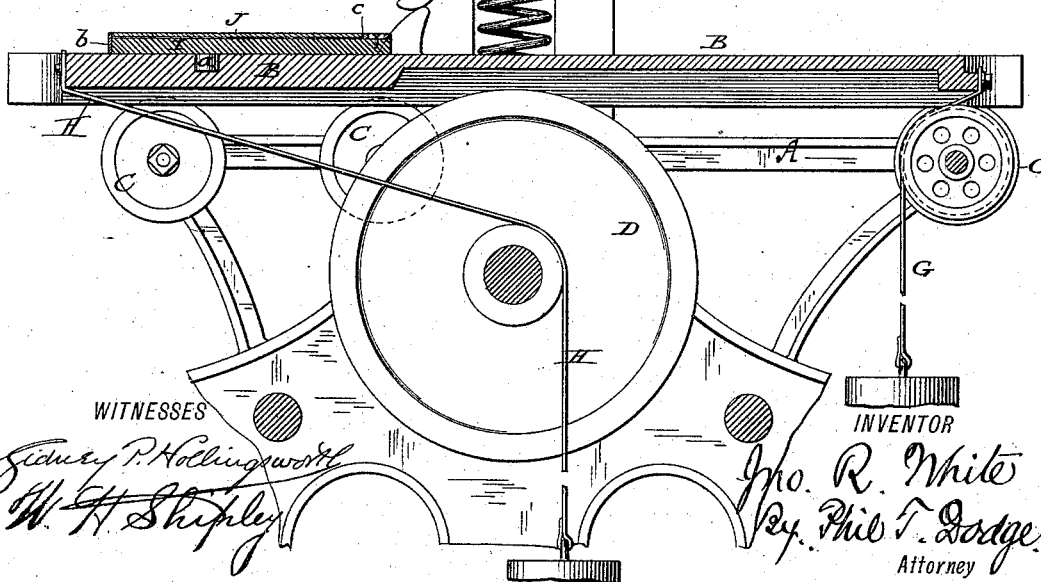


J. R. WHITE.
PLATE PRINTING MACHINE.

Patented Sept. 23, 1884.

A perspective view of the machine in operation. A hand is shown holding the handle, which is connected to a lever. The lever is pivoted on a central axis and is in a raised position. A blade is shown cutting through a material, which is being fed into the machine. The material is being cut into a series of rectangular pieces. The machine is labeled with 'E' and 'N'.

A diagram showing a three-part assembly. The left part is labeled 'J', the middle part is labeled 'I', and the right part is labeled 'B'. The parts are connected by a horizontal line. Below the assembly, there is a label 'I' and a dimension line indicating a length of 6 units.



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UNITED STATES PATENT OFFICE.

JOHN R. WHITE, OF WASHINGTON, DISTRICT OF COLUMBIA.

PLATE-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 305,646, dated September 23, 1884.

Application filed June 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. WHITE, of Washington, in the District of Columbia, have invented certain Improvements in Plate-Printing Machines, of which the following is a specification.

My invention has reference more particularly to those hand-presses for copper and steel plate printing in which the plate is carried by a reciprocating bed beneath an impression-roll; and the invention consists, principally, in combining with the bed of the press a frame or support to carry the plate, pivoted in such manner that it may be turned freely in a horizontal direction, so as to present the plate longitudinally or transversely of the press at will, in order to admit of the plates being conveniently inked and wiped by hand in the required directions without being removed from the press.

In the use of hand-presses at the present day it is customary for the printer to remove the plate from the press after each impression and place it upon a stove or heater, where it remains until it has been inked and wiped, when it is finally returned to the press and secured in position thereon. These operations are slow and laborious. They necessitate the provision of additional space to give room for the heaters and for the movements of the operator about the press; they subject the plate to the danger of injury or destruction in being constantly handled and carried to and fro; also, because ink will accumulate and harden between the bed and plate in such manner as to destroy the uniformity of the impression, and for other reasons they are objectionable. Now, it is the aim of my invention to permit the plate to remain permanently on the press and to be properly and conveniently inked thereon, so that time and labor may be saved, and injury to the plate avoided.

To those skilled in the art it is well known that engraved plates, after being inked, require to be wiped in particular directions, having reference to the direction in which the lines are cut therein, to the end that the surface may be fully cleansed without removing the ink from the lines. When the plates are fixed permanently on the press in the position which they must occupy in print-

ing, they cannot be conveniently or quickly wiped in the required direction; but by pivoting the plate-holder so that it may be revolved horizontally, I enable the workman to quickly turn the plate without removal to the different positions required in order to admit of his hand being conveniently carried, with or without a wiping-cloth, across its surface in the particular direction desired.

My improvement may be embodied in various forms and modified in many details which will suggest themselves to the skilled mechanic after an examination of the specification and of the accompanying drawings.

I have represented in the drawings the construction which is best known to me at the present day, and which I have found in practice to give highly satisfactory results.

Referring to the accompanying drawings, Figure 1 is a top plan view of a press having my improvement applied thereto. Fig. 2 is a longitudinal vertical section of the same on the line *x x*. Fig. 3 is a top plan view of the bed, with the plate-holder turned from the printing position to the position for inking and wiping. Fig. 4 is a section on the line *y y*, Fig. 1, showing the locking-pin by which the plate-holder is retained in position.

With the exception of the details, which will be hereinafter specified, the press represented in the accompanying drawings is substantially the same in construction as those now in common use.

A represents a rigid frame, containing a horizontal reciprocating bed, B, which is supported and guided by vertical rolls C. One or more rolls D are also located in the main frame centrally beneath the bed to give the latter support directly beneath the impression-roller during the time of the impression. Above and across the bed there is located an impression-roll, E, having its journals mounted in adjustable bearings sustained by springs in the sides of the main frame, as usual. This impression-roll has one side removed or flattened in order to admit of the bed returning thereunder after the impression without being subjected to pressure. The impression-roll is provided at one end, as usual, with an operating-wheel having a series of spokes or arms to be grasped by the printer. To one end of the bed there is attached a weighted

strap, G, passing downward over a suitable guide-pulley, and serving to return the bed endwise to its normal position after it has been moved forward to take an impression.

5 The foregoing parts are constructed and arranged to operate in the ordinary manner, and are not claimed as of my invention.

In order to arrest the backward movement of the press easily and quickly, I attach to 10 the forward end of the body a second weighted strap, H, which is extended forward and downward over the journal of the central roll, D, or over any other suitable support. This 15 strap H is made of such length as to permit the bed to return nearly to its normal position before the weight is lifted thereby. Its effect is therefore simply to check the motion of the bed as it completes its backward or return movement. It will be understood that 20 during the forward movement of the bed the weight rests upon the floor and is inactive.

In applying my improvement I first provide a frame or secondary bed, I, of suitable size and form to sustain the printing-plate J, 25 which is seated thereon. This bed I connect on the under side to the main bed of the press by means of a vertical pivot or stud, *a*, around which it may revolve in a horizontal direction, the stud serving, however, to prevent 30 the removal or lateral displacement of the frame, and also causing the parts to turn accurately to the proper position as they are adjusted for printing. On the bed of the press I bolt or otherwise secure a stop-plate, K, 35 which limits the rotary motion of the frame in one direction, and insures the stoppage of the same at the proper point. Near the end of the bed I seat therein a vertically-movable pin or catch, L, which is urged upward by a spring, 40 M, acting against its lower end. This pin, rising above the bed of the press, engages with the rotary frame, and locks the same firmly against the stop K, whereby it is held rigidly in a proper position during the printing operation. When, however, the plate is to be 45 inked, the depression of the pin L will release the pivoted frame, which may then be revolved freely upon the bed, so that the surface of the plates may be presented in the position best adapted to permit the inking or wiping operation to be carried out. 50

As a convenient means for turning the frame I provide the same at one corner with a handle, N, which may be made of any proper 55 form. The stop-pin may have a square shoulder to interlock with the frame, in which case it will require to be depressed before the movement of the frame can be effected. I prefer, however, to round the top of the stop-pin, as 60 shown in the drawings, so that it will yield and ride forward when the frame is pulled sharply against the same. The plate may be secured to the rotary frame in any suitable manner; but I prefer to provide the frame, as 65 shown, on one side with a movable flange, *b*, adapted to engage one edge of the plate, and on the opposite side with a movable plate, *c*,

slotted and secured by screws, so that it may be conveniently adjusted and confined against the opposite side of the plate. 70

The rotary frame I may be of any proper form or construction, and the pivot by which it is connected to the bed-plate may be variously applied. It is recommended, however, 75 that the pivot, the stop-pin, and the shoulder or stop K be made removable, as shown in the drawings, in order that the press may be restored at will to its original or ordinary condition.

It will be noted that the pivot *a* in my press 80 is attached to the rotary frame, which may be lifted at will from the press. This is an important feature, in that it permits the plate to be quickly removed and replaced, as is occasionally required in practice, and this without 85 stopping to disconnect the plate from the supporting-bed or destroying its adjustment thereon. It will be further noted that upon removing the rotary table and the stops K and L the press is left in its original condition. 90

In presses as ordinarily constructed the return movement of the bed under the influence of the weighted strap G is attended with considerable noise and concussion. To remedy this 95 difficulty, I connect to the bed a second weighted strap, H, extending from the forward end of the bed downward over the journal of the central roll D, or over other suitable support. This strap is of such length and is so arranged 100 that it permits the weight to remain upon the floor and inactive as the bed moves forward and until it has nearly completed its return movement, at which time, however, the strap, becoming taut and lifting the weight from the 105 floor, serves to arrest the motion of the bed easily and quickly. The use of the weighted strap H, arranged to act on the journals of the supporting-roll, is also advantageous, in that its friction is sufficient to quickly arrest the 110 rotation of the roll D after the bed has passed therefrom. In ordinary presses the mechanism of this roll causes it to continue its rotation for a considerable time, causing unnecessary wear of the journals, and also causing 115 the wear to take place on certain portions or certain sides of the journals and of the roll. In my press the roll makes but a partial rotation after the bed has left its surface. The result is that the wear is equalized both upon 120 journals and upon the surface of the roll in such manner that it will remain true for a greater length of time than in presses of the ordinary construction.

I am aware that in an automatic power- 125 press having mechanical appliances to ink and wipe the plate a support for the plate has been connected with the bed by means of a screw at the center and slots and screws at the ends in such manner as to receive a very slight turning motion from an operating-pin on the frame 130 of the press during the movement of the bed, and to such construction, which did not permit the free or unlimited rotation of the plate,

and which would not practically secure the end which I have in view, I lay no claim.

I believe myself to be the first to so pivot in a hand-press the support for the printing-plate that it may be turned freely by hand to permit the inking or wiping of the plate conveniently in the desired direction.

Having thus described my invention, what I claim is—

10 1. In a hand-press for plate-printing purposes, the combination of a reciprocating bed and a frame or support for the printing-plate, pivoted and arranged to be turned freely upon the bed in a horizontal direction, to present the
15 plate longitudinally or transversely of the press at will.

2. In a plate-printing press, the combination, with the reciprocating bed and impression-roll, of the frame or plate support, pivoted to turn horizontally, and devices, substantially
20 as shown, for locking said frame in position.

3. In a plate-printing press, the combination, with the reciprocating bed B, of the pivoted horizontally-turning frame I, the fixed

shoulder or stop K, and the yielding stop or
25 detent L.

4. In a plate-press, the combination, with the bed and the pivoted plate-supporting frame I, of the yielding pin or dog L, having a rounded upper surface, whereby it is adapted
30 to unlock automatically when the frame is subjected to sufficient strain.

5. In a hand-press for plate-printing, the combination of the reciprocating bed, the plate-support I, provided with clamping de-
35 vices to hold the plate, and a vertical connecting-pivot, a, adapted, as described and shown, to permit the removal and replacing of the support I at will.

6. In a plate-printing press, the combina-
40 tion of the reciprocating bed, the weighted strap G, to return the same in one direction, and the weighted strap H, to arrest the bed at the completion of its return movement.

JOHN R. WHITE.

Witnesses:

J. KARR,

SAML. C. MILLS.