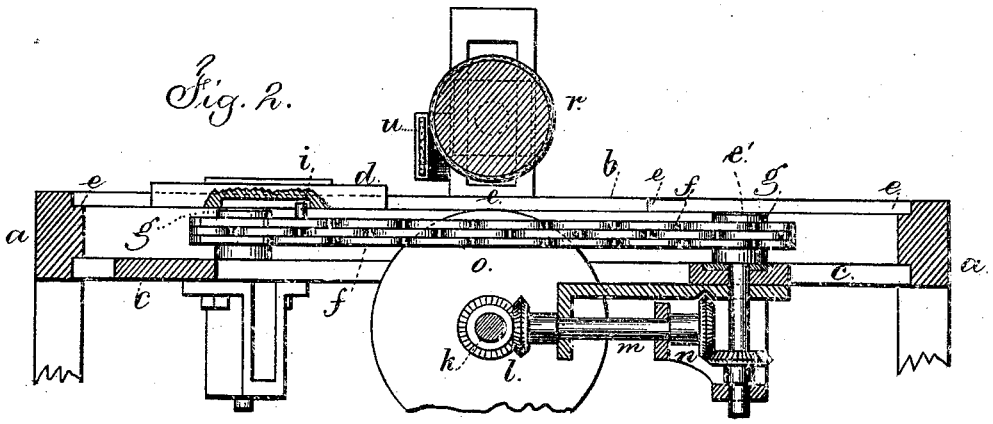
J. MILLIGAN.

PLATE PRINTING PRESS.

No. 180,490. Patented Aug. 1, 1876.

Fig. 2.



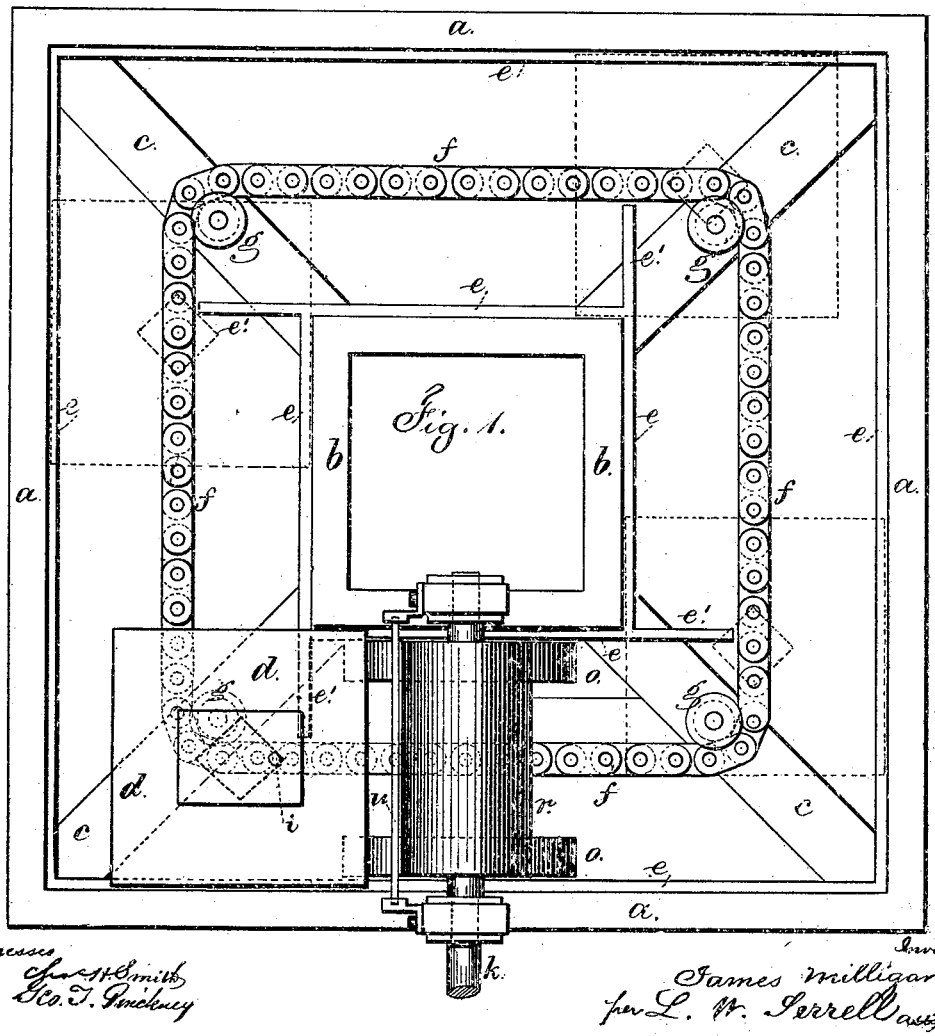


Fig. 1.

Witnesses
Jno. H. Smith
Geo. T. Pinckney

Inventor
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per L. W. Serrell Atty.

UNITED STATES PATENT OFFICE.

JAMES MILLIGAN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PLATE-PRINTING PRESSES.

Specification forming part of Letters Patent No. **180,490**, dated August 1, 1876; application filed April 27, 1875.

To all whom it may concern:

Be it known that I, JAMES MILLIGAN, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Plate-Printing Presses, of which the following is a specification:

Plate-printing presses have been made in which the bed or plank upon which the engraved plate rests has been carried around upon a revolving table, and the inking or filling in, wiping, polishing, laying on, pressing, and removing the sheet have been performed successively as the table is revolved progressively. In other instances the beds have been sustained upon ways and carried around progressively by a circular rim.

My present invention relates to a printing-press of this general class; and consists in a four-way slide-frame, in which the plank or bed is moved progressively, and allowed to pause at the angles, so as to allow for the inking, polishing, laying-on, and taking-off operations to be performed while the plank is at or near the angles of the frame, and, by employing four beds, these operations are performed simultaneously by different operatives upon different plates, thus greatly facilitating the operations.

In the drawing, Figure 1 is a general plan, and Fig. 2 is a vertical section.

The frame *a* is square and supported upon suitable legs, and this is connected with the inner frame *b* by the bars *c*, and between the frames *a b* there is the space required for the square bed or plank *d* to slide as it rests upon the ledges of offsets *e;* and to support the advancing edge of the plank as it comes into the corner the ledges are extended part of the way across, as seen at *e'*.

In order to move the bed or plank along on the straight side to the end or angle, and then start the same off in a direction at right angles to the line of its former movement, I make use of a belt or chain, *f*, passing around the pulleys *g g*, and upon this chain there are projecting studs or pins *i*, that correspond in number with the beds employed. There will generally be four at equal distances apart, as illustrated in Fig. 1 by the full and dotted lines. These pins *i* may be connected, by a link, with the center of the bed at the under side; but I have shown a square opening in the center of the bed at the under side, placed diagonally, so that the pin will occupy one angle of this opening while drawing the bed along on one side. It will then pass from that angle to the next as the bed arrives at the corner of the frame, and in so doing there will be a pause in the movement of the bed, and the bed or plank will be fully moved to its next position by the pin traveling along the inclined side of this opening as said pin moves with the chain around the roller *g* at the angle.

The corners of the frame *a* may be slightly rounded, and the bearing-ledges widened, so that the plank may be free to move with the pin and chain as they turn around the rollers in passing from one straight line to the next.

In order to move the chain I make use of a main shaft, *k*, bevel-gears *l*, second shaft *m*, and bevel-gears *n*, to the axis of one of the rollers *g;* and this roller should have lugs fitting the chain or belt *f*, so as to move the same reliably.

Upon the shaft *k* are the rollers *o*, that sustain the bed or plank *d* while the impression is given by the blanket-roller *r*. This roller *r* is of usual character, and may be started by a cam-shaped projection coming into contact with the bed or plank. This blanket-roller is set in adjustable boxes, as usual.

The inking and wiping of the plate will be performed as the plank approaches one angle, pauses, and starts again in the next direction. The polishing will be done at or near the next angle. The laying on of the sheet will be at or near the third angle. The impression is then given, and the sheet is removed at or near the fourth angle; and each operative is allowed the time that is occupied in polishing each plate, this being the limit of speed.

The sheet will usually be laid on and registered, and the operator guides the paper as it passes under the blanket-roller, and in so doing it is often necessary to pull the paper one way or the other to prevent wrinkling, and the operator's fingers are occasionally caught by the blanket-roller, even in hand-presses. Hence, to prevent the possibility of the hand being drawn in when printing by power, I provide a transparent shield, *u*, made of glass,

and sustained adjustably at the ends, so as to be raised or lowered. This prevents the fingers getting too near the blanket-roller accidentally, and at the same time the paper can be carefully observed and guided.

The plank may be made sufficiently thick and hollow, so as to receive a lamp to heat up the same to any desired temperature to warm the plate.

I claim as my invention—

1. The rectangular frames *a* and *b*, forming a square slide, in which the square plate-bed *d* is moved, in combination with the chain or belt *f*, rollers *g*, impression-roller *r*, and gearing connecting the shaft *k* and roller *g*, substantially as set forth.

2. The combination, with the impression-roller and bed in a plate-printing press, of the shield *u*, made of glass, and sustained at the side of the impression-roller where the plate and paper enter, and above such plate, for the purposes set forth.

Signed by me this 23d day of April, A. D. 1875.

JAMES MILLIGAN.

Witnesses:

GEO. T. PINCKNEY,

CHAS. H. SMITH.