H. Barth.

Printing Press.

No. 70,067. Patented Oct. 22, 1867.

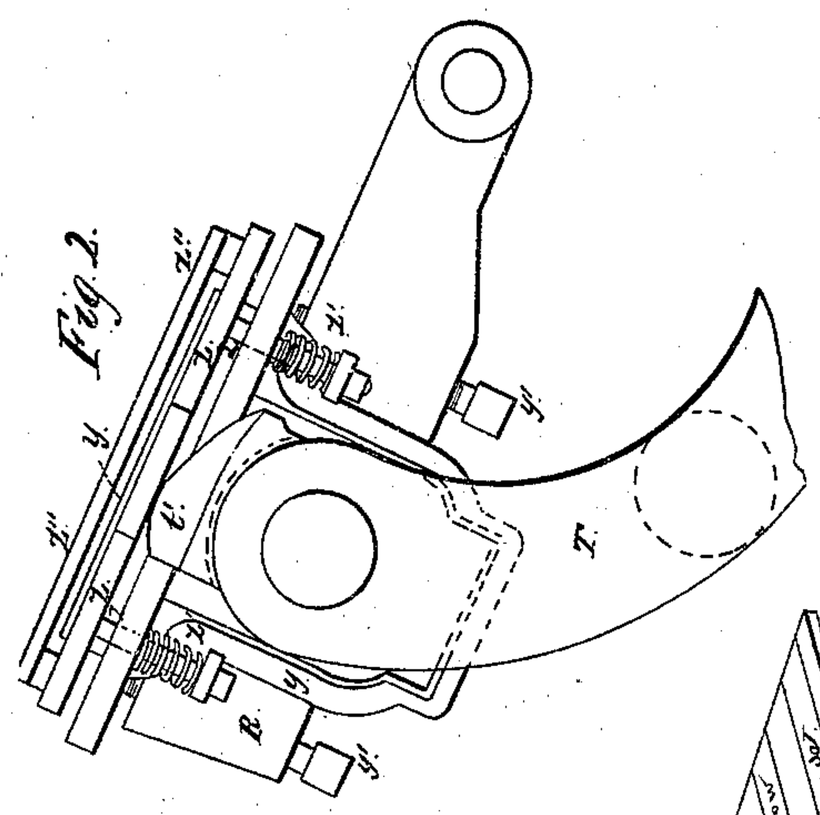

Fig. 2.

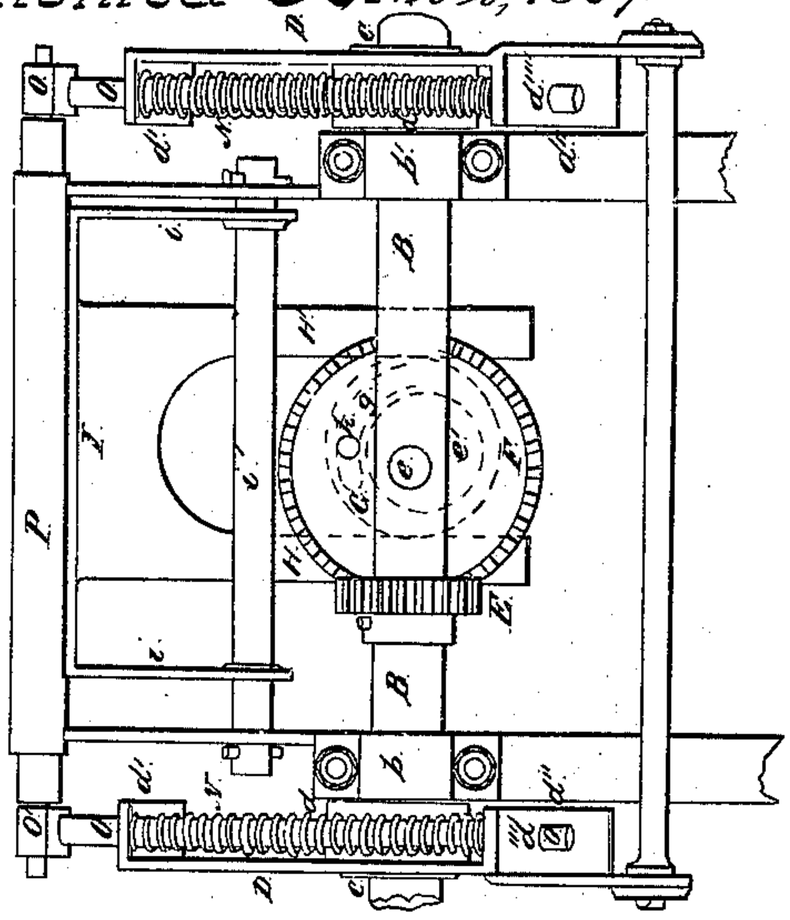

Fig. 3.

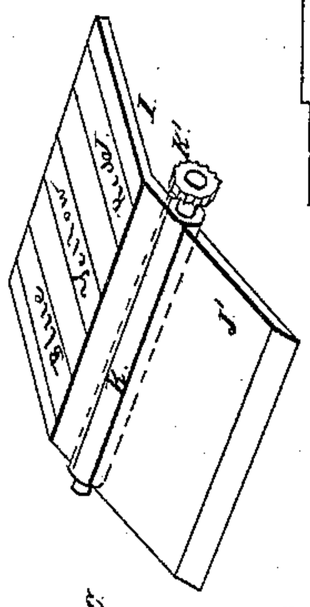

Fig. 4.

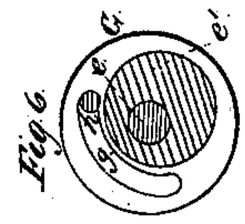

Fig. 6.

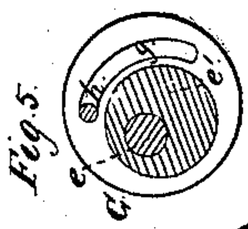

Fig. 5.

Fig. 1.

Witnesses.

Chas. Wells

Inventor.

Henry Barth

United States Patent Office.

HENRY BARTH, OF CINCINNATI, OHIO.

Letters Patent No. 70,067, *dated October* 22, 1867.

IMPROVEMENT IN PRINTING-PRESSES.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, HENRY BARTH, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented new and useful Improvements in Printing-Presses; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates particularly to devices for producing, when desired, a lateral vibratory motion of the inking-table of a printing-press, which motion is adjustable in degree as desired, for the purpose of printing, at one impression, several colors more or less blended together, at the will or taste of the operator, the same press being also adapted either for the ordinary monochromatic printing or for printing two or more colors without blending.

My invention further consists of an improved construction of the paper-holding and ink-distributing devices. In the accompanying drawings—

Figure 1 is a side elevation of a press embodying my invention.

Figure 2 is a detached view of the platen and its accessories.

Figure 3 is a detached rear view of my roller-inking and blending devices.

Figure 4 is a perspective view of the inking-table.

Figures 5 and 6 represent respectively the eccentric and concentric conditions of my table-shifting mechanism.

A is the frame of the machine. B is the main shaft journalled in the frame at *b b'*. Keyed firmly to the shaft B are the cams *c*, pinion E, and large spur-wheel C, the said cams being visible in dotted lines in fig. 1, and partly in elevatiou in fig. 3. The pinion E meshes into a tooth-faced wheel, F, which is keyed securely to a shaft, *e*, journalled permanently in frame A. To the shaft *e* a cam, *e'*, is rigidly attached, around which another cam G is fitted. The cam G is slotted at *g*, is provided with a tightening set-screw, *h*, tapped into the wheel F, and is fitted to revolve between and to impart lateral reciprocating motion to the cheeks H H' of the inking-table I. It will be seen, by the adjustment of the cam G with relation to the cam *e'*, that when the eccentricity of the former approximates the same direction as the latter, the greatest degree of lateral oscillation is imparted to the inking-table I, and that when the cam G is directly opposed to the cam *e'*, the periphery of the former is concentric with the shaft *e*, and no motion is imparted to the inking-table. The table I has projecting cheeks *i*, which slide over a rod, *i'*, fixed rigidly to the frame, and are provided with inclined inking-surfaces J J'. The various colored inks may be applied in longitudinal stripes on the faces J J' of the table I, as shown in fig. 4, or temporary strips, on which the different colors are laid, can be attached longitudinally to the face J, and as the inking-rollers P P' P'' are passed over the table I J J' while the latter is in oscillation, a blending together of the colors is produced on the rollers, which colors, thus blended, are transmitted to the type or form. The modes herein referred to for applying the colors, whether to the naked table or on separate strips attached thereto, being old and well known, require no specific description. The distinguishing feature of novelty in this part of my improvement is seen in the arrangement of the double eccentric or compound cam G *e'*, whereby the printer is enabled to give more or less motion to the inking-table so as to blend the colors to any desired extent or degree, the same device enabling him to restore the table to rest when no blending of colors is desired. The face J' of the inking-table has a transverse slot, *j*, to receive the upper portion of a roller, K, called by me the "shifter," whose periphery projects slightly above the face J'. The said roller K carries at its end a ratchet-wheel, K', on which a pawl, *k*, acts to insure the non-rotation of said roller when the inking-rollers are returning from the type form, but which allows a free rotation to said roller when the inking-rollers are approaching the form, so as at every stroke to change the points of contact of the rollers P P' P'' both with the inking-table and with the type. This shifting action prevents the formation of clouds and streaks in printing. In some cases I provide an auxiliary or additional distributing-roller, L', occupying bearings *l* in arms L situated above the rollers P P' P''. D D' are the inking-roller frames, adapted to have a partial rotary reciprocating motion around the cam *c*, to carry the rollers P P' P'' alternately over the ink surface and over the type or form. The frames D D' are provided with bosses *d*, which fit over the cams *c*, and with flanges *d' d''*, which have apertures *d''''*, through which the supporting-rods O for the inking-rollers P pass. The rods

O are encircled by coiled springs N, which, by pressure against the flanges *d'*, tend to keep the rollers P with a firm and equal pressure upon the surface of the inking-table I J J'. The ends of the rods O are provided with journal-sockets O' for the rollers P P' P''. The roller-frames D D' are hung eccentrically, as described, on cam *c*, to give relief to the rollers P P' P''' and springs N, when the rollers are traversing the most elevated points in their passage over the form S and table I J J'. The two extreme positions of the frames D D' are shown in fig. 1, in strong and in dotted lines respectively. Connecting-rods Q, which are attached to crank-wrists *q* on the wheel C, and to the platen-frame R at the opposite end, serve to give the required motion to the platen to and from the form S. At the same point on the platen-frame R, to which the rod Q is attached, the arms T for supporting the platen-frame are journalled, the latter being pivoted to the frame at *t*. Pivoted to the arms T at *t''*, and to the roller-frames D D' at *d'''*, are rods U for communicating the requisite motion already described to the frames D D'. The platen-frame, at its lower side at *r*, has arms V attached, one on each side of the machine, and connected by rods W. These rods are for the purpose of tipping up the platen-frame R on the backward stroke, so as to give it a convenient presentation for reception of the paper, (see dotted lines.) A slight longitudinal play is allowed to the rods W by slots *w* in the frame. The above mode of working the platen being old and well known, requires no more specific description. The platen-plate Y is secured to its frame R by clamps *y*, and is adjusted to parallelism by set-screws *y'*. Surrounding the platen-plate Y is the frisket-frame Z, and screwed fast in the lower side of said frame are four screws *z*, which pass through holes in the platen. Between the under side of the platen-plate and the screw-heads are interposed spiral springs *z'*, which tend to draw the frame bodily down, and to cause bars *z''* to press upon the tympan, so as to hold the paper in place by so equal and firm a pressure on every edge that it cannot be drawn away from the tympan even by the stiffest ink. When the printing of one impression has been accomplished, and while the face of the platen is being brought back to the hand of the operator, the frisket (by the partial rotation of the cam *t'* on the ends of arms T) is raised bodily and equally on every side from the tympan at the same time that the platen-frame is partly rotated by means of arms V, (see fig. 2.) By this means the printed sheet is freed equally all around, and a blank sheet being placed upon the tympan, the continued motion of the parts depresses the cams *t'*, and enables the frisket to close bodily down upon and tightly hold the sheet as before. It will be seen that the cams *t'* raise the frisket in a direction at right angles to the plane of the tympan, thus freeing every part at once, and without unequal action upon or dragging of the paper. The press may be run by means of a treadle, 2, on arms 3, connected by rods 4 to crank 5, on a shaft, 6, which connects by a pinion, 7, to wheel C, on the main shaft B, or can be run by an assistant, by means of a handle, 8, projecting from the crank-wrist *q*, or by a belt from a steam engine or other motor.

I claim herein as new, and of my invention—

1. The provision of the ink-table or surface I J J', arranged to admit of a greater or less reciprocation transversely to the path of the inking-rollers, by means of the compound adjustable cam G *e'*, or its equivalent, in manner substantially as set forth.

2. In combination with the slotted ink-table I J J' and inking-rollers P P' P'', I claim the intermittent roller or shifter K, applied and operating substantially as and for the purpose explained.

3. The arrangement of the frisket Z, screw-pins *z*, springs *z'*, and cams *t t'* or their equivalents, for the purpose set forth.

4. The eccentric journalling of the roller-frames D upon the shaft B, for the purpose stated.

In testimony of which invention I hereunto set my hand.

HENRY BARTH.

Witnesses:

GEO. H. KNIGHT,

JAMES H. LAYMAN.