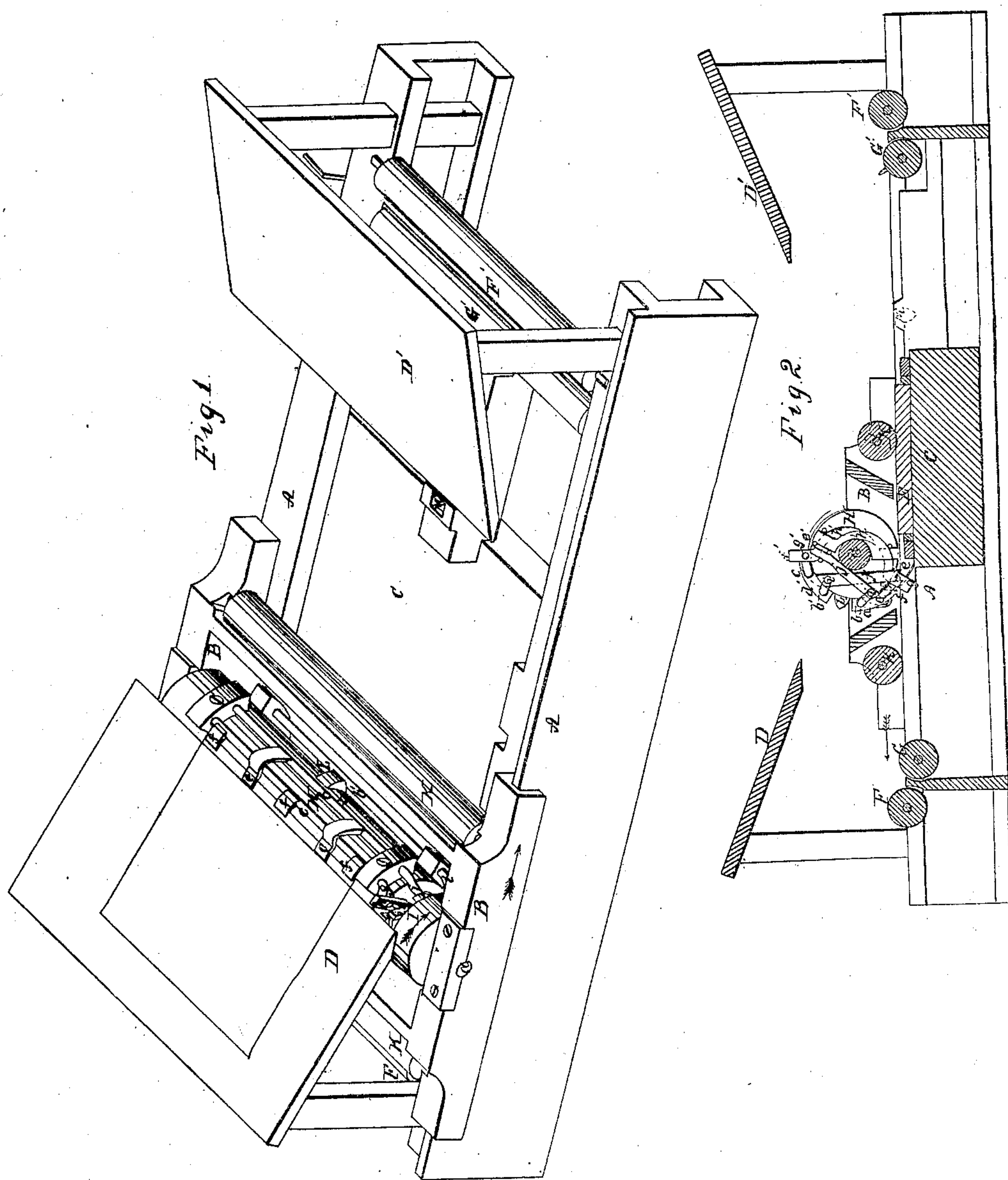


J. Densmore.
Printing Press.
Patented Nov. 9. 1852.

N^o 9383.



UNITED STATES PATENT OFFICE.

JOEL DENSMORE, OF BLOOMING VALLEY, PENNSYLVANIA.

PRINTING-PRESS.

Specification of Letters Patent No. 9,383, dated November 9, 1852.

To all whom it may concern:

Be it known that I, JOEL DENSMORE, of Blooming Valley, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description of the same reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of a press constructed according to my improvements, and Fig. 2, is a longitudinal vertical section of the same, taken nearly close within the side of the frame which is shown in front in Fig. 1.

Similar letters of reference indicate corresponding parts in each figure.

The object of this invention is to make a press at a small cost of convenient form to be worked by hand but capable of doing a much greater amount of work in a given time than a common hand press, such a press is a great desideratum for printing journals or periodicals of too small a circulation to pay for a power press, but which it is necessary to print with despatch.

The printing is performed by passing the paper around a cylinder hung in a carriage which is moved back and forth along a stationary frame or rail-way, under or upon which is a fixed type bed which carries the form, and at each end of which there is a feeding board from which the sheets are supplied to the cylinder. The cylinder is caused to revolve by the movement of the carriage, revolving in opposite directions as the carriage moves in opposite directions; it is furnished with two sets of grippers or fingers which take a sheet from each feeding board alternately, the cylinder carrying the sheet over the form and printing it as the carriage moves toward the opposite feeding board, and the fingers being caused to release it at the proper time, by suitable mechanism which is operated by the movement of the carriage.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, A, represent the two sides of the frame upon which the carriage B, B, travels; they may be supported by standards in any convenient way.

C, is the type bed; and E, (Fig. 2) the form.

D, D' are the feeding boards.

F, F', G, G', are rollers constituting part of the working apparatus.

H, is the cylinder whose axle *a*, is hung in bearings in the two sides of the carriage. At one end of the cylinder, fast upon the axle *a*, there is a wheel I, which may be toothed or otherwise, and is for the purpose of giving revolution to the cylinder when the carriage is moved along on the frame; revolution being given to the wheel by its contact with the top of the frame or rail-way, which is either toothed or plain to match the wheel I. In the drawing the wheel and rail-way are plain. Between the end of the cylinder and the wheel I, there is a recess which is to make room for some of the mechanism which causes the fingers to release the sheet and it is through this recess that the section Fig. 2, is taken, on either side of the cylinder is an inking roller K, which receives ink from the rollers F, G, or F', G', and inks the type. Between the shafts *b*, *b*, there is a tooth L, upon the cylinder which enters a recess M, in a bar over which it passes and keeps the cylinder in its proper place in relation to the bed, this would not be necessary if the wheel I, were toothed and working in a rack.

b, *c*, are two small shafts which carry one set of fingers or grippers, and *b'*, *c'*, two similar shafts carrying the other set. These shafts are fitted in bearings *d*, *d'*, which hold them as close as possible to and parallel with the cylinder. The shaft *b*, carries long fingers *e*, *e*, which pass over the shaft *c*, and lie close to the cylinder when the sheet is first presented, the sheet being placed above them as shown in Fig. 1, where the sheet is shown in red lines. The shaft *c*, carries shorter fingers *f*, *f*, which press upon and hold the sheet (see Fig. 1.) The shafts *c'*, *d'*, carry fingers *e'*, *e'*, similar to *e*, *e*, and *f*, *f*, but turned in the opposite direction. The fingers *e*, *e*, and *f*, *f*, are for taking the sheets from the feeding board D, and *e'*, *e'* and *f'*, *f'*, are for taking them from D'. Each of the shafts *b*, *b'*, *c*, *c'*, is furnished with a crank at the end next the wheel I, by which it is turned to operate the fingers. The crank *g*, of *c*, is attached to a rod *h*, which slides between guide pins in the recess between the cylinder and its driving wheel, being curved

to work clear of the axle. That end of the rod *h*, to which the crank is connected projects some distance beyond the periphery of the driving wheel. The crank *i*, of *b*, is attached to a rod *j*, which also slides between guide pins. The cranks *g'*, and *i'*, of *c'*, and *d'*, are attached to rods *h'*, and *j'*, precisely similar to *h*, and *j*. These rods attached to the cranks are all intended to operate upon the fingers by turning the shafts, the rods being moved endwise at suitable times as the carriage runs along by their ends passing over the face of A, which is the track of the wheel I.

The operation of the press is conducted in the following manner. The sheets to be printed are placed upon the feeding boards, at each of which stands an attendant (a boy) to feed them in. The carriage B, B, is run along back and forth by the pressman. As a convenient means of driving it, I would suggest that a bar be attached to either side standing out horizontally at about the height of the pressman's middle; as the labor of driving it is not great, he may run or walk along the side of the press and push it along by bearing his body against the bar, and thus have his hands at liberty to take off the sheets and attend to the fingers, or do whatever else may be necessary. When the carriage is run up to bring the cylinder under either feeding board, we will suppose for instance D, as shown in Fig. 1, the fingers are always in the proper position to receive the sheet, the long fingers *e*, *e*, being close to the cylinder, and the short ones *f*, *f*, being raised. When the sheet is introduced the fingers *f*, *f*, are brought down upon its edge and made to hold it by the pressman pushing down the projecting end of the rod *h*. The carriage is then run along toward D', by which the sheet is carried by the cylinder over the type, and the impression given to it, after which it is released by the fingers so as to be removed by the pressman before the cylinder arrives at the opposite feeding board to receive another sheet. The manner in which the sheet is released will be best understood by referring to Fig. 2, where the carriage is supposed to be moving from D', toward D, the cylinder having just passed over the type and the time for releasing the sheet having arrived. When the fingers are down upon the cylinder, the opposite ends

of the rods *h*, *h'*, *j*, *j'*, to those which are attached to the cranks, project a little beyond the periphery of the wheel I. This may be understood by referring to *j'*; and when these projecting ends pass over the track the rods are pushed endwise and caused to turn the cranks so as to lift the fingers. The rod *h'*, in Fig. 2, is shown as having just been pushed up, and the crank *g'*, turned so as to raise the fingers *f*, *f'*, from the paper and the rod *j'*, is just coming into contact with the way, to be pushed up in order to turn the crank *i'*, to raise the fingers *e'*, *e'*, which as they rise release the sheet from the cylinder and leave it free to be removed. As the carriage continues to move toward D, the end of the rod *j*, which is attached to the crank *i*, passes over the track and the rod is pushed so as to bring the fingers *e*, *e*, close to the cylinder to receive the next sheet, which is presented to the cylinder from the feeding board D, as soon as the carriage reaches the end of its movement, and is secured by the pressman pressing down the rod *h*, with his hand and bringing the fingers *f*, *f*, down upon it. During the return of the carriage toward D', the rods *h*, and *j*, are caused to operate upon the cranks *g*, and *i*, and fingers *f*, *f*, and *e*, *e*, in the same manner as *h'*, and *j'*, did upon the cranks *g'*, and *i'*, and the fingers *f'*, *f'*, and *e'*, *e'*, as above described. The operation is continued as above, the carriage being run back and forth and the cylinder taking a sheet from each feeding board alternately.

What I claim as my invention and desire to secure by Letters Patent, is—

The combination substantially as described of the fingers or grippers *f*, *f*, *f'*, *f'*, for seizing the sheets and holding them to the cylinder, and the fingers *e*, *e*, *e'*, *e'*, for throwing the sheets off from the cylinder, said fingers or grippers being attached to shafts arranged longitudinally to the cylinder and attached thereto, and being turned to give the necessary movements to the fingers by the revolution or vibration of the cylinder through the agency of cranks and rods, or their equivalents.

JOEL DENSMORE.

Witnesses:

J. R. DONNALLY,
AMOS DENSMORE.