Sheet 1. 2 Sheets.

W. & T. Schnebly.

Printing Press.

No. 1315. Patented Sept. 7. 1839.

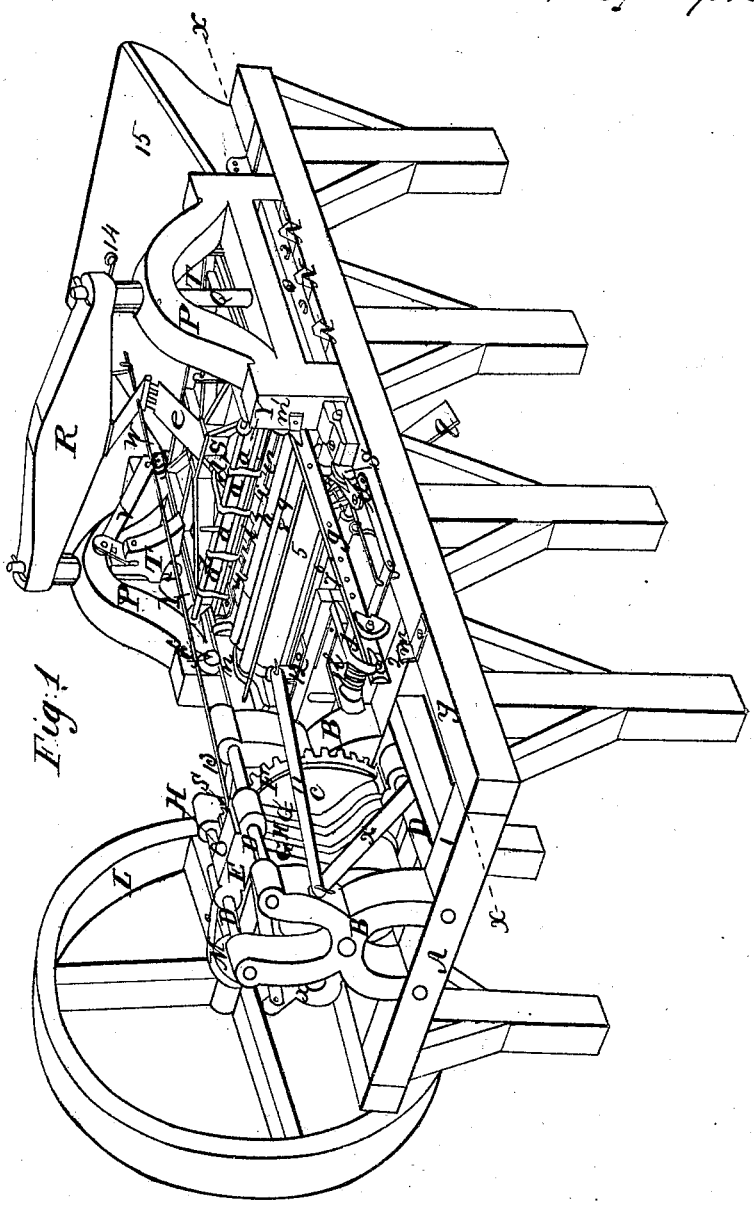

Fig: 1

W & T. Schnebly
Printing Press.

Sheet 2. 2 Sheets.

No. 1315.

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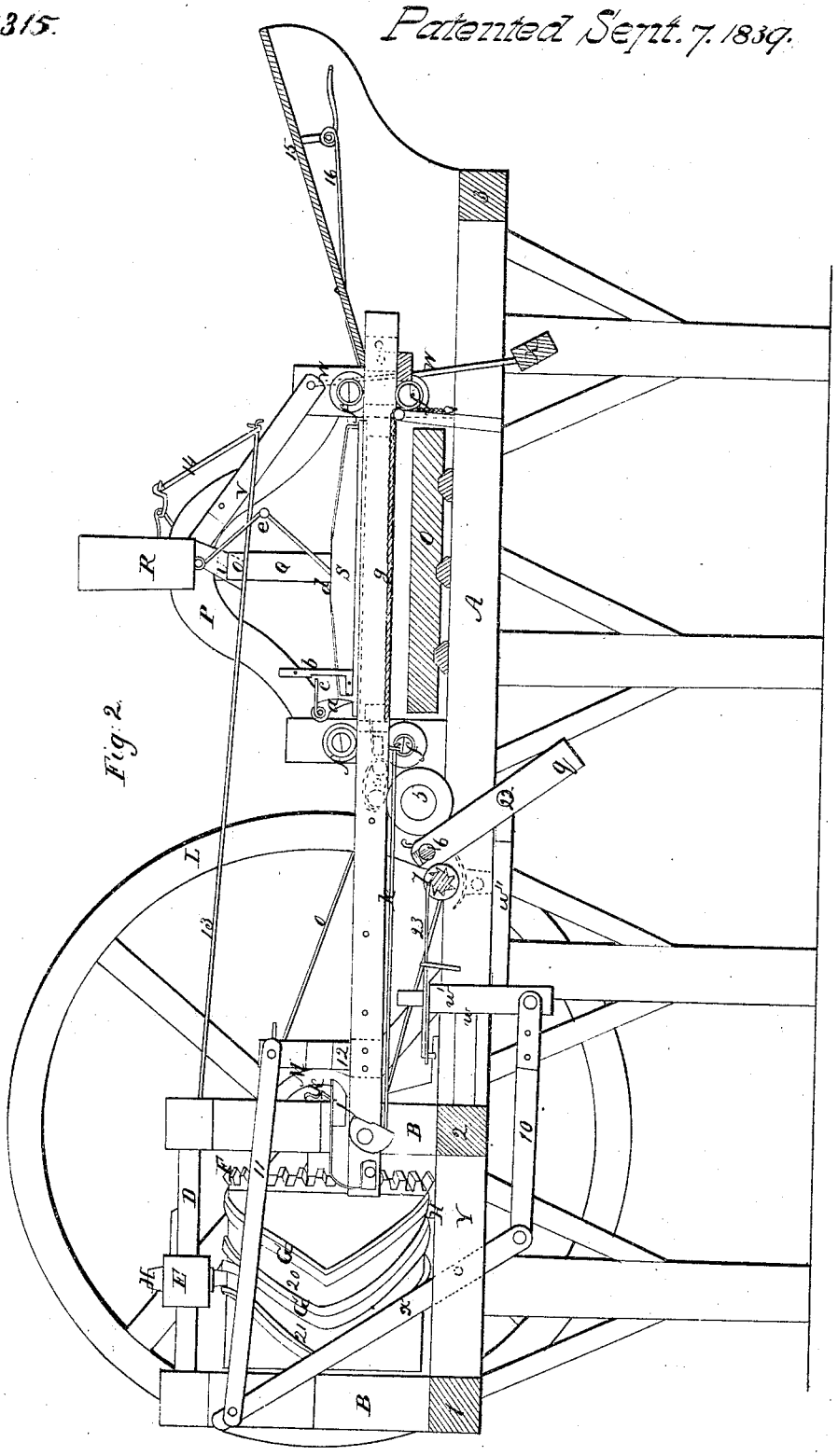

Fig. 2.

UNITED STATES PATENT OFFICE.

WILLIAM SCHUEBLY AND THOMAS SCHUEBLY, OF HAGERSTOWN, MARYLAND.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **1,315**, dated September 7, 1839.

To all whom it may concern:

Be it known that we, WILLIAM SCHUEBLY and THOMAS SCHUEBLY, of Hagerstown, in the county of Washington and State of Maryland, have invented a new and useful Improvement in the Art of Printing; and we do hereby declare that the following is a full and exact description of the construction and operation of the said machine as invented by us and titled the "Rotary Reciprocating Printing-Press," described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a perspective view. Fig. 2 is a vertical section at the line *x x* of Fig. 1.

Similar letters refer to similar parts in the figures.

Make a frame A of suitable material of proper height, length, and width, connected together by cross-pieces 1 2 3 of suitable material and strength, one 3 at the end from whence the papers are passed into the machine, and 1 and 2 at the other end at equal distances apart, on which are placed uprights B for the reception and location of a cylinder C, which is to be laid horizontally in the center of the frame. Four guide-rods D D D D are attached to the uprights parallel with, two of which are placed above and two below, the cylinder at equal distances apart. On the two guide-rods above the cylinder a sliding block E E of suitable strength is to be placed, and on the guide-rods below the cylinder a similar block E′ E′ is placed. The cylinder is to be made of suitable material and of proper diameter and length with a bevel-wheel F on the one end, corresponding with the diameter of the cylinder. There are two grooves on the circumference of the cylinder, one 20 running obliquely one-third of the distance round them parallel with the end of the cylinder, one-third round and thence obliquely back to the commencement. The other 21 starts from a point just back of the first-named groove and runs parallel with the oblique part one-sixth of the circumference, then parallel with the end two-thirds round, and thence obliquely to the point of commencement, so that the motion of pin H will be the reverse of the pin H′ on the opposite side moving in the other groove, the sliding blocks E E each having a pin H of sufficient strength and length passing through them, with friction-rollers I I on the ends of corresponding diameter with their relative grooves and falling into the same, so that when the upper sliding block is in motion the lower one is at rest, and when the lower one is in motion the upper one is at rest, by which a reciprocating motion is given to the blocks E E, as the case may be.

On the end of the shaft which lies at right angles with the shaft of the cylinder is placed a small bevel-pinion K, which interlocks the bevel-wheel F on the end of the cylinder, the shaft being supported by means of studs placed one on the cross-piece and one on the side frame. On the end of the same shaft and outside of the frame a fly-wheel L is placed of proper diameter and weight, and from the same shaft the motion is communicated by suitable gearing or pulley M to the inking-rollers 5 6 7 8 9. At a proper distance from the cylinder three cross pieces or ribs N N N, of suitable shape and strength, are located, reaching across from one side of the frame to the other and bolted fast at equal distances apart as supporters of the bed-plate O, which has three corresponding grooves or tracks to guide it as it is pulled out or pushed in from a suitable table on the side of the machine. Immediately above the bed, on each side of the frame, are placed cheeks P P, of suitable strength, &c., formed in such a manner as to make an open space between them and the top of the side frames of proper height and width to admit the free passage of the bed and form of type on it as it passes to and from the side table; also, to make another open space between the tops and bottoms of the cheeks of proper height, through the center of which two strong rods Q Q of proper length, &c., are passed, forming supporters for a beam or cross-cap R, which is located on the top of the cheeks P P, reaching from one side to the other and bolted fast to the same, the cheeks also being bolted fast to the frames by rods passing through them on each side, &c. Immediately above the bed a platen S, of proper size, &c., is located. On the ends next to the cheeks upright studs T are attached by means of bolts, which have semicircular collars at equal distances apart made to fit on the rods Q Q, which pass through the

center of the openings in the cheeks and serve as guides to keep the platen in place in its movement from its elevation down to the type and back again. Connected with the studs T on the platen are rods U, of sufficient strength, &c., which also connect with levers V on each side and inside of the cheeks, in which their fulcrums are placed on the other end of the levers V. Rods W are connected, which drop down below the bed alongside the frames and suspend a weight X sufficient to keep up or counterbalance the platen when not acted upon for the purpose of making impressions.

The blankets and tympan-sheet are attached to the platen by suitable frames in the usual way. On the side of the platen next to the cylinder two studs Y Y are located, one on each end next to the cheeks, which support a rod Z, which has upon it a set of fingers *a* of proper length to reach down to the under edge of platen, with a bend in each, which projects a proper distance under the platen to clasp the front edge of the paper sufficiently to hold it, when required, the width of the fingers *a* to correspond with open spaces cut out of the front edge of the frisket, all being equal distances apart. On the center of the rod Z a spring is fixed, which passes against the platen and causes the fingers *a* to press sufficiently hard to hold the paper against the lower edge of platen when required. On one side of the platen next to the cheek a spring *b* is fixed, and on the end of the rod Z a trigger *c* is placed, which holds the fingers *a* open, as the case may be. On the inside of the cheek next to the spring *b* and trigger *c*, at a proper place, a stationary cam is located, which acts upon the spring *b* and trigger *c*, as the platen is made to descend, when the fingers *a* are made to perform the duty of catching the paper. Immediately above the center of the platen a cup *d* is formed, of suitable depth, &c., in which a block is fitted, of proper thickness, connected with and forming the lower part of the knee or toggle-joint *e*, of proper length and strength the other end of which is connected with the cross beam or cap R above. On the inside of the cheeks and on each of the cheek-posts are placed friction-rollers *f*, at equal distances apart, of proper diameter, &c. In the space between the platen and cheeks, which support the carriage *g*, of suitable length and breadth, &c., four rollers *f* on one cheek and four on the other to guide it and keep it in place in its passage in and out under the platen, &c., the carriage being connected together at each end by suitable cross-pieces. At a proper place on the sides of the carriage are located two elliptical springs, which receive the frisket and support it. The frisket is kept in place by means of guide-pieces, made fast on the sides of the carriage, when it is made to descend and ascend to its elevation above the form of type, &c. The frisket can be removed at pleasure to arrange the cords, &c. The front edge of frisket is to be cut out to form vacancies for the platen-fingers to strike in, so as to catch the paper, each opening or vacancy in the frisket to correspond with the fingers above on the platen. In front of the frisket and next to the cylinder a rod *h* is located at a suitable distance from the frisket, the ends resting in the sides of the carriage. On this rod *h* a set of fingers *i* are placed at equal distances apart, made of suitable length to reach the frisket and fall upon it. From one end of the rod *h* a rod *k* runs back along the carriage side and connects with a short rod laid at the end of the carriage side, which has upon it a spiral spring to press the fingers *i* upon the front edge of the frisket sufficiently hard to pull the paper from the feed-board, as the case may be. On the rod which is at the end of side carriage an angular piece is fastened, the one side of which is made to fall into a spring-catch *l*, which holds the finger *i* open on the side frame. Under this angular piece a cam *m* is placed, which strikes the other side of the angular piece and throws the upper side into the spring-catch *l*. As the carriage is made to return to its place of rest on the front side of the cheek in a line with the spring-catch *l*, another cam *m* is placed, which opens the spring-catch *l*. As the carriage is made to pass into its extreme distance and causes the fingers *i* to catch the papers on the end of the carriage next to cylinder, another cam is placed, which is made to operate upon the spring on the rod Z and throws the fingers *a* open and lets the paper fall, while at the same time it cocks the trigger *c* in the spring *b*, which holds the fingers *a* open, as the case may be, next to the rod *h*. On the sides of the carriage two blocks *n*, of suitable length, are placed, supported by a pivot or pin on which they move, which form the seats for two composition rollers. Those seats or blocks *n* have small pins under them fastened into the sides of carriage, which keep them parallel, each block having a small spring pressing it down on the pins below, which are made fast on the sides of carriage. This arrangement adapts the inking-rollers to the curvature of the ink-cylinder below, on which they lodge to receive their supply. A cap of suitable material is placed above the rollers to keep them in place, &c. The ink-cylinder 5 below is laid across the frame of proper size, &c., to which motion is given by suitable gearing or pulley on the shaft of the same, connected with the gearing or pulley *m* on the shaft which supports fly-wheel L, and the speed regulated, as the case may be. The space between the inking-rollers 8 9 and the end piece of carriage *g* is made a receiver by placing cords or wire, &c., or anything suitable upon which the papers fall when the carriage passes into its extreme point under the platen. The friction-rollers which support the carriage are placed high enough on the cheeks to raise the under edge of the sides of the carriage high enough to

prevent the form and type from touching them in the movement in and out, &c. Next to cylinder 5 a composition roller 6, of proper diameter, is located, supported by levers *g* placed inside of the frame having their fulcrums in the frame and the lower ends of the same made heavy enough to counterbalance the composition roller 6 and keep it against the cylinder 5, the levers *g* being connected below by a suitable rod 22, reaching from one to the other, the roller 6 on one end having a collar or wheel *s* fastened of proper diameter, &c. Next to roller 6 the fountain is placed, of proper width and depth, at a proper distance from roller 6 to give it room to permit roller 6 to play from cylinder 5 to fountain-roller 7, so that when it touches the one it is absent from the other. The ink-fountain rests on the side frames, having a roller 7 in the fountain, which has a ratchet-wheel *r* on one end of proper diameter, &c. The quantity of ink is regulated as the case may require. On the side frame, at a proper distance from the collar or wheel *s* on roller 6, a bent lever is located, which moves upon a pivot having one end forked, which is made to embrace the collar or wheel *s* loosely, so as not to prevent the revolution of roller 6. The other end of the bent lever has connected with it a rod *u'*, lying lengthwise with frame, which also connects with a lever V, which lies crosswise with the frame, having its fulcrum in the frame. On the end next to the cylinder a split or slot is formed into which an upright *w'* works, which is connected to the end of the rod W, that passes through a hole in cross-piece 2 and fastens on the lower sliding block E. On the lower end of the upright *w'* and on a line to range with the cross-rod 22, which connects levers *q* together, another rod *w''*, of suitable shape, is fastened on the end next to cross-rod 22 to push or operate upon it on the inner side of the fulcrum on lever V a dog or pawl 23 is located at a proper distance from the fulcrum to give it a proper movement on the ratchet-wheel *r* on which it rests. On the lower end of the upright piece *w'* a rod 10 is connected, which is made to reach back under the cylinder C to a cross-piece *z*, which reaches from one lever *x* on one side of cylinder C to lever *x* on the other side and connects with the lower ends of levers *x x*, whose fulcrums are in pieces *y*, which are made fast between cross-pieces 2 3 at a proper distance from the cylinder. The levers *x x* are made long enough to give the proper motion to the carriage, to which they are connected at their upper ends by rods 11 and end-piece 12 of carriage. Connected with the upper sliding block E is a pitman 13, which has a hook in the end which passes through the knee-joint *e* and catches upon the center-pin of the same, and can be thrown out of gear by means of a lever 14, connected with pitman or rod 13, so as to stop the impression while the machine is in motion. On the end of the frame from the cylinder C a board 15 is located, inclined sufficiently to let the papers slip from it easily, which is raised high enough to permit the carriage to pass under it without touching. On the under side of the board a lever 16 is fastened with points on one side projecting through the board. The lever on the other end of the fulcrum is bent down low enough to be touched by a cam placed on the end piece of carriage as the carriage is made to pass under it, which throws the points out of the way and holds them in that position until the paper is drawn from the board, when the weight of the bent end of the lever 16 throws the points up again, by which the register is made. The front edge of the feeding-board 15 is to be placed immediately above the front edge of the frisket when it is at its extreme distance on the carriage when it has been run out to catch a paper, &c., and which is also to be cut out, forming spaces for the fingers *i* to clear it when they are made to strike upon or catch the paper between them and the front edge of the frisket to pull it from feeding-board, &c. The process of printing is therefore carried on in the following manner and by the instrument herein described. By turning the fly-wheel shaft motion is communicated to the cylinder C, which has upon it the grooves formed by the ledges G, into which the piston-rollers H' on the ends of the pins H, which pass through the sliding blocks E, fall, so that from the connection, as herein described, the carriage is made to pass under the platen with the frisket upon it to the feeding-board, the type being inked by the two composition-rollers 8 9 in their passage over the form and back again from and to the ink-cylinder 5. At the same time the fingers *i* are made to catch the paper which it now lays upon the board by the cam *m'* on the cheek which sets off the spring-catch *j* on the end of the carriage. When the carriage returns to its place of rest, having drawn in a paper, the fingers *i* are made to release their hold by the cam *j'* on the side frame, this being done by the connection with the lower sliding block. It now stops while the upper one is made to move. The platen is made to descend from its elevation, having on it four springs, which are fastened on each corner and running down between it and the carriage, projecting far enough below the lower edge of the platen to meet the four corners of the frisket before the platen touches it, which drives the frisket with the paper upon it down previously to the type to prevent it from crimping. When the platen is made to make the impression by the straightening of the knee-joint *e*, at that moment the cam on the inside of the cheek opens or sets off the spring *b* and trigger *c* and causes the fingers *a* to catch the front edge of the paper now being impressed, and holds it up against the front edge of platen as it ascends to its elevation above the type, when the upper block E stops and the lower one again is made to move, passing the rollers again over the type,

feeding and distributing the ink by the connection, as herein described. When the carriage reaches its extreme point of distance, the fingers *a* are made to release the paper by the cam on the end piece of carriage next to cylinder, when it falls upon the receiver and is carried off by the same. At the same moment of time, by a simultaneous action upon the fingers *a* and fingers *i* by the cams, the paper on the feeding-board is caught and the other let go, one to be drawn in, the other to be taken out, the one having received an impression, the other going in for that purpose. The papers may also be discharged in the following manner: by disconnecting the cords from the front end of the frisket and continuing them down under the bed, passing them over a little roller, which is laid across the frame at a point a little nearer the form than the point at which the front edge of the frisket reaches to catch the papers from feeding-board, each cord to have a light weight suspended to it to keep it in place, so that when the papers are impressed by stopping the action of the fingers *a* the paper will return with the frisket back again under feeding-board and drop off, this being necessary in a rapid operation.

We therefore claim as our invention—

1. The combination of the two grooves on the cylinder C for the purpose of giving the impressions and operating the carriage and inking-rollers, as herein described.

2. The arrangement of the ribs and bed by which the bed with the form of type can be removed for correction, &c., and when replaced is stationary for the action of the platen, as herein described.

3. The method of taking the papers from the frisket and discharging the same by means of the fingers attached to the platen, as herein described.

4. The mode of discharging the papers after being impressed below the feeding-board by the arrangement of the cords and weights attached to the frisket, as herein described.

5. Supporting the frisket on springs attached to the carriage in the manner herein described, and in combination therewith, the springs attached to the platen for forcing down the frisket, as herein described.

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