R. CUMMINGS.

PRINTING PRESS.

No. 83,471. Patented Oct. 27, 1868.

Fig. 3.

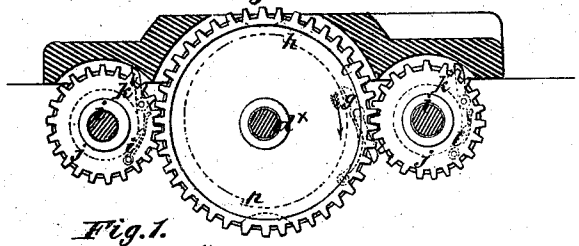


Fig. 4.

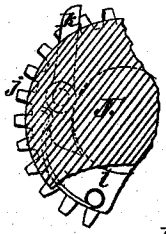


Fig. 1.

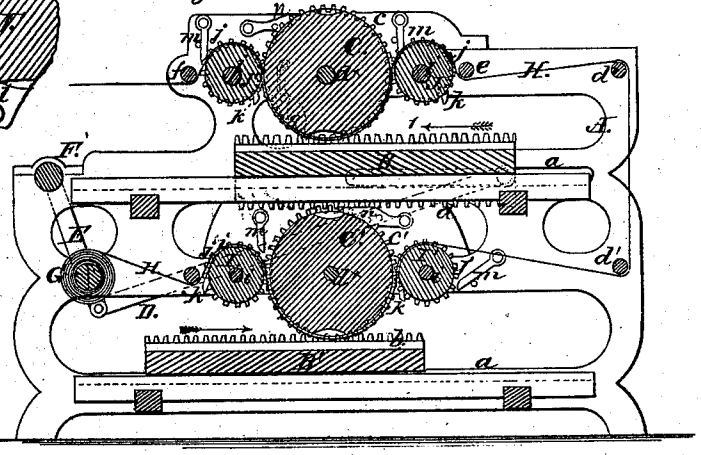


Fig. 5.

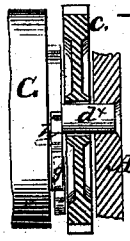
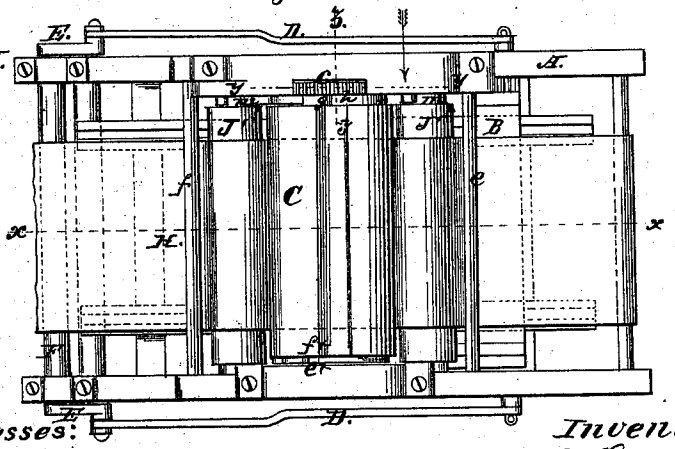


Fig. 2.



Witnesses:

Wm. A. Morgan.

G. C. Cotton

Inventor:

R. Cummings

per Munn & Co

Attorneys.

United States Patent Office.

ROYAL CUMMINGS, OF NEWPORT, VERMONT.

Letters Patent No. 83,471, *dated October* 27, 1868.

IMPROVEMENT IN PRINTING-PRESSES.

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

To all whom it may concern:

Be it known that I, ROYAL CUMMINGS, of Newport, in the county of Orleans, in the State of Vermont, have invented a new and useful Improvement in Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, fig. 2.

Figure 2 is a plan or top view of the same.

Figure 3 is an enlarged section of the same, taken in the line *y y*, fig. 2.

Figure 4 is an enlarged view of a portion of fig. 3.

Figure 5 is an enlarged section of a portion of fig. 2, taken in the line *z z*.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and improved printing-press, of that class in which the paper is printed from a continuous roll, and both sides of the paper at one operation, or during a single passage of the paper through the press.

The invention consists in a novel arrangement of paper-feed rollers with reciprocating platens and pressure-cylinders, as hereinafter shown and described, whereby a very compact, simple, and efficient press is obtained, and one which is excellently well adapted for newspapers and book-work.

In the accompanying sheet of drawings, A represents the frame of the machine, which may be constructed in any proper manner, to support the working parts; and B B′ represent two horizontal type-beds, which work on ways or guides *a*, in the frame A, one bed, B, being above the other, B′, as shown clearly in fig. 1.

The type-forms are placed on these beds, and each bed has a rack, *b*, at one side, which racks gear into toothed wheels *c c′*, at one end of pressure-cylinders C C′, as shown in fig. 1.

The upper bed, B, has a rack, *d*, attached to its under side, and this rack gears into the wheel *c′* of the lower cylinder C′, which is also shown in fig. 1.

By this arrangement, motion is communicated from the upper bed, B, to the lower one, B′, and to both pressure-cylinders C C′, the upper bed B receiving its motion, by means of connecting-rods D D, from cranks E E, at the ends of a driving-shaft, F.

G is a roller on which the paper, H, to be printed is rolled, and this paper passes over a roller, I, at one side of the lower pressure-cylinder C′, underneath said cylinder, and over a roller, I′, at the opposite side of C′, and then upward, over, or around rollers, *d′ d′*, small in diameter, underneath another small roller, *e*, over a roller, J, at one side of the upper cylinder C, underneath the latter, and over a roller, J′, at the opposite side of C, thence under a small roller, *f*, to the shears or cutting-device which cuts off the printed sheets.

It will be seen by referring to fig. 1, that the pressure-cylinders C C′ press the paper down upon the forms on the platens, and cause the impressions to be made on both sides of the paper.

The motion of the pressure-cylinders C C, and rollers I I′, J J′, is intermittent, as they are rotated only when the platens B B′ are on their forward movement, which is indicated by the arrows 1, and during which one impression is being taken.

During the return movement of the platens, the rollers above named are stationary, and consequently the paper is not moved.

This intermittent movement of the paper-feed rollers and pressure-cylinders is effected as follows: The wheels *c c′* of the cylinders C C′ are placed loosely on their shafts $d^{\times}$ $d^{\times}$, so that said wheels will turn independently of the cylinders when the platens B B′ are on their return movement, and thereby allow the cylinders to remain stationary, a casual movement of the cylinders being prevented by pawls, $c^{\times}$, attached to the frame A, engaging with projections $f^{\times}$ at the ends of the cylinders opposite to that where the wheels *c c′* are placed.

When the platens move in the directions indicated by the arrow 1, and the impressions are being taken, the cylinder C C′ are rotated in consequence of pawls *g*, attached to the inner sides of the wheels *c c′*, coming in contact or engaging with projections *h* at the ends of the cylinders. (See more particularly fig. 3.)

On the shafts *i′ i′*, of the rollers I I′, J J′, there are placed, loosely, wheels *j j′*, into which the wheels *c c′*, of the cylinders C C′, gear. The inner sides of these wheels have pawls, *k*, attached to them to engage with projections, *l*, at the ends of the rollers at the proper time, and cause said rollers to rotate and feed the paper along.

The pawls *g k* are thrown out free from the projections *h l*, of the cylinders C C′, and rollers I I′, J J′, by means of buttons, *m n*, those of the pawls *k* being pivoted or suspended, so that the pawls may pass them when the wheels *j* are turning backward, and not feeding the paper.

The buttons *n* of the wheels *c c′* are fixed, as the pawls *g* are not required to pass them, a half revolution only of the cylinders C C′ being made at each forward or printing-movement of the platens.

The cylinders C C′ are cut or grooved longitudinally their whole length, at two opposite points, as shown at *o o* in fig. 1, and these grooved surfaces stop successively over the platens, so that the latter, in making their return movement, will not bring the type-form in contact with the paper.

By means of these buttons, *m n*, the pawls *g k* are disengaged from the cylinders C C′, and rollers I I′, J

J′, a short time previous to the termination of the forward or working movement of the platens.

By this arrangement the paper is printed on both sides in its passage through the press, and by a very simple arrangement of means.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The pressure-cylinders C C′, in connection with the reciprocating type-beds B B′, and the paper-feed rollers I I′, J J′, all arranged to operate in the manner substantially as and for the purpose set forth.

2. The combination of the two impression-cylinders C C′, revolving in opposite directions above the reciprocating beds B B′, with the paper-carrying cylinders I I′, J J′, substantially as described, for the purpose specified.

Witnesses: ROYAL CUMMINGS.

DAVID M. CAMP, 2d,

JOSEPH FRANKLIN SARGENT.