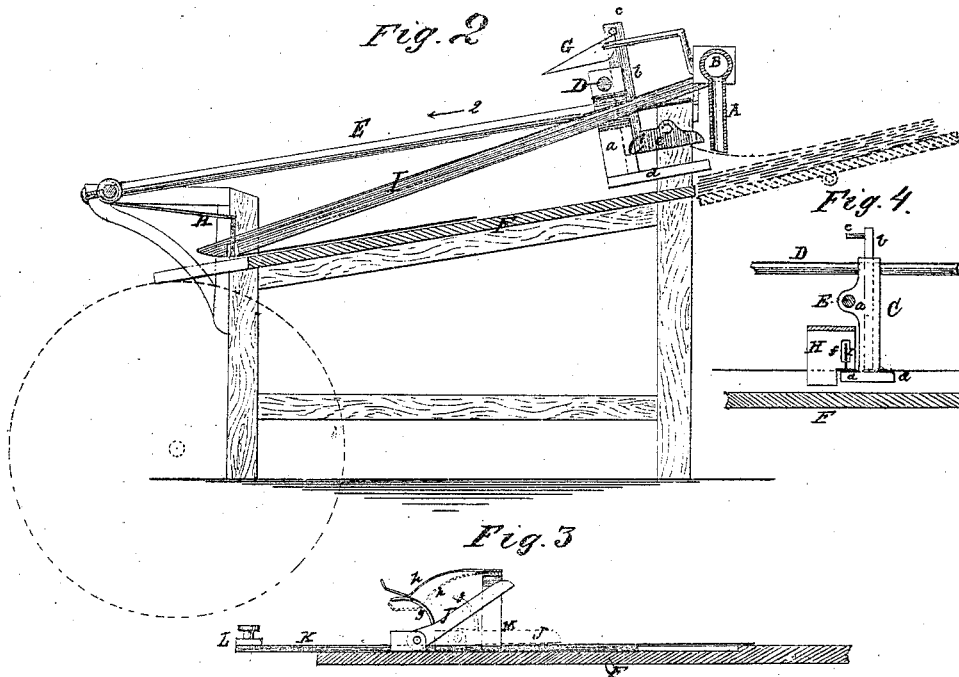
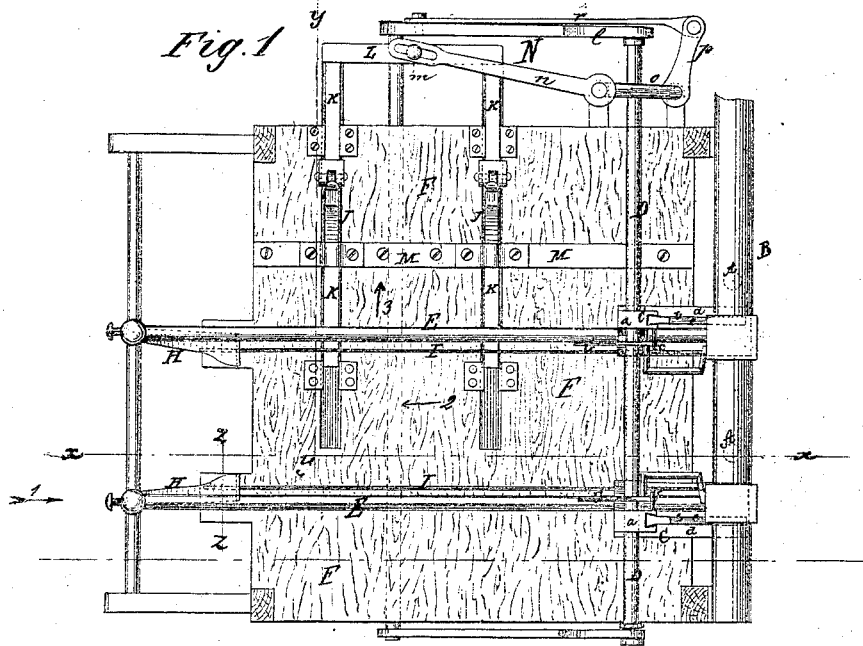


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Improvement in Paper-Feeding Machines.

No. 114,031.

Patented April 25, 1871.



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IMPROVEMENT IN PAPER-FEEDING MACHINES.

Specification forming part of Letters Patent No. 114,031, dated April 25, 1871.

To all whom it may concern:

Be it known that I, OLIVER NORELIUS, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Improvement in Feeds for 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.

My invention is an improvement on my feed for printing-presses patented by me February 22, 1870, No. 100,059, and has for its object to furnish an apparatus by which sheets of printing-paper of any size and placed in any oblique position upon the oscillating feed-table when separated from the pile by means of suction-pipes will be grasped, adjusted squarely, and thus delivered to the grippers of the printing-press without manual assistance.

My invention relates to improvement in the feed mechanism of printing-presses; and it consists in the combination of parts, as hereinafter described, and as specified in the claims.

In the drawings, Figure 1 represents a top view of my improved feed attachment. Fig. 2 is a vertical section of the same, taken through the line *x x* of Fig. 1. Fig. 3 is a side view of the adjusting-slide clamps, seen from the section of the table through the line *y y* of Fig. 1. Fig. 4 is a detail section of one of the squaring-gages through the line *z z* of Fig. 1, seen in the direction of the arrow 1, and showing also an end view of one of the carriers.

Similar letters of reference indicate corresponding parts.

A are the suction-pipes described in my former patent. In this case the pipes A are attached to the stationary tube B, on which they may be made to slide, and thus the distance between them adjusted according to requirement. The lower ends of pipes A are cut obliquely, as shown in Fig. 2, in order to facilitate the grasping of the sheet by the carriers by raising its inner edge the farthest as the suction separates it from the pile.

C are the carriers, made of two parts, *a* and *b*, the part *a* being stationary and attached to a traveling bar, D, which works on guides E across the table F and receives a reciprocating motion from the printing-press machinery.

Said part *a* is provided with a vertical guiding slot or way in which the part *b* is fitted, so as to enable its being raised and dropped by means of a pin or projection, *c*, passing a stationary incline, G.

d is a flange or projection on *a*, and *e* is a similar projection on *b* parallel with *d*, between which (*d* and *e*) the edge of the sheet is clamped as the part *b* drops when the pin *c* has passed the inclined plane G.

H are the squaring-gages, notched at the lower corner to allow the passage of the flange *d* of the carrier C after adjusting the paper to the gages H, and slotted through at *f*, Fig. 4, to allow the end of the rest-bar I to drop from the flange *d* on the paper when the carrier C has passed the gages H.

J are the adjusting-slide clamps, fitted to slides K in the table F, said slides K being connected by a yoke, L, or otherwise, so as to cause the clamps J to grasp the lateral edge of the paper simultaneously. Fig. 3 shows the clamp in the raised position when it advances to grip the edge of the paper, and in dotted lines its position after having clamped the same to adjust it laterally by pulling it up to a side gage, M. One mode of raising and dropping the clamp J is shown in Fig. 3. A catch, *g*, on the clamp J engages with the stationary spring *h*, which causes the clamp to rise in its forward movement until it is dropped by the catch *g* passing a sharp bend on the spring *h*. In the return movement the spring *h* is raised by the catch *g*, and its elasticity serves to aid in depressing the clamp J on the paper.

Various systems of levers or gearing may be employed for imparting reciprocating motion to the carriers C and clamps J, but I prefer that shown in Fig. 1. In that case the rod D works in slots in the upper ends of vibrating arms *l*, and the stud *m* on the yoke L works in a similarly-slotted vibrating lever, *n*. These levers vibrate, respectively, in a vertical and horizontal plane. The lever *n* is keyed or secured on shaft *o*, which is connected with the lever *l* by a crank-arm, *p*, and link *r*. The movement of the rod D toward the tube B throws the arm *p* in the same direction, and the consequent partial revolution of the shaft *o* causes the lever *n* to move the yoke L outward from the gage M.

The operation is as follows: As the paper

is separated from the pile on the oscillating table, Fig. 2, by means of the suction-pipes A, the carrier C, passing the incline G, drops its sliding part *b* and clamps the paper between the flanges *c* and *d*, holding it by the weight of *b*. The carrier C, traveling across the table F on the guides E in the direction of arrows 2, then draws the sheet squarely up to the gages H, the rest-bar I at the same time preventing the edges of the paper from being bent up or creased against the gages H, and, passing said gages, drops the sheet, returning to clamp another. At this juncture the sliding clamps J grip the lateral edge of the sheet, and, returning, pull it in the direction of arrows 3 (at right angles to arrows 2) up to the side gage, M, smoothing it out and placing it in the final position in which it is caught by the grippers of the printing-cylinder.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the carriers C with the yielding inclines G, constructed and operating substantially as described, and for the purpose set forth.

2. The combination of the carriers C, clamps J, gages H M, and rest-bar I, all arranged and operating substantially as described, for the purpose specified.

3. The combination of the sliding clamps J, slides K, catches *g*, and springs *h* for clamping and moving the sheet to the gage M, substantially as described.

The above specification of my invention signed by me this 6th day of July, 1870.

OLIVER NORELIUS.

Witnesses:

GEO. W. MABEE,
T. B. MOSHER.