2 Sheets—Sheet 1.

L. HARLOW.

Machine for Feeding Paper.

No. 207,805. Patented Sept. 10, 1878.

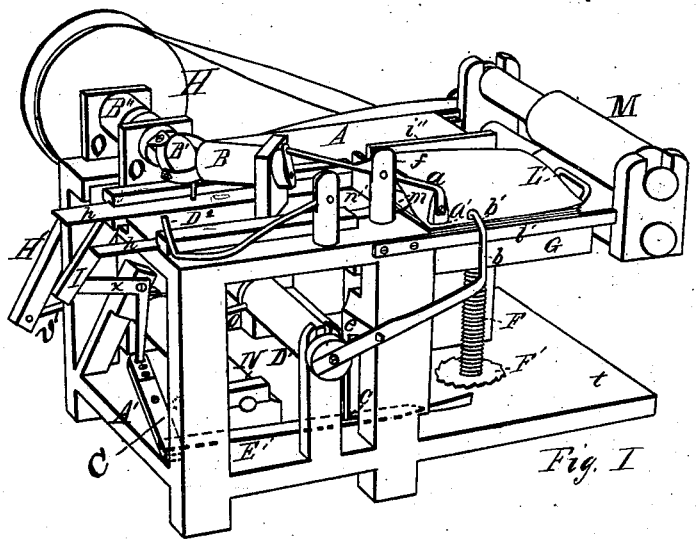
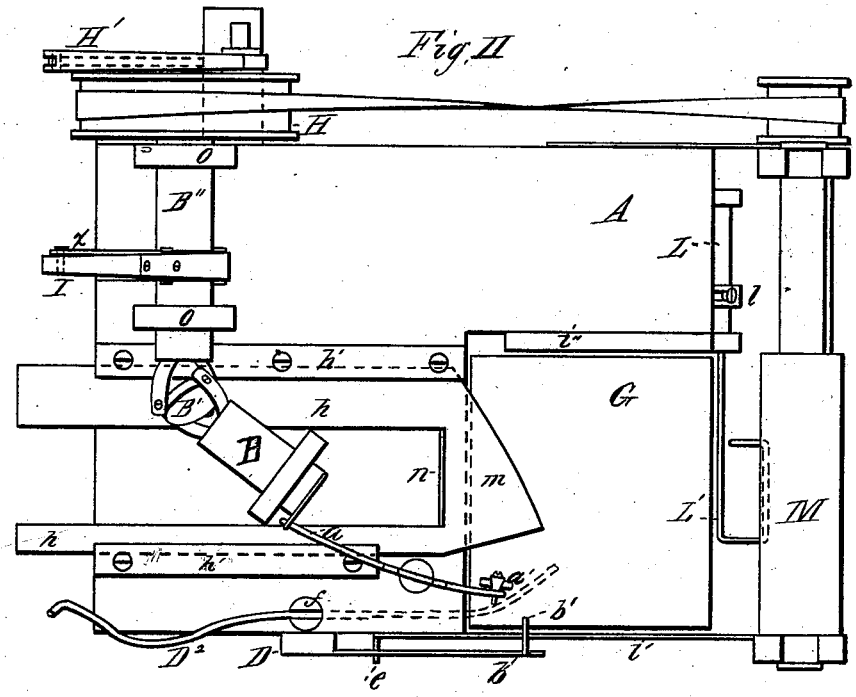


Fig. I

Fig. II



Witnesses.
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W. M. Taylor

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By T. A. Curtis.
his atty.

2 Sheets—Sheet 2.

L. HARLOW.

Machine for Feeding Paper.

No. 207,805. Patented Sept. 10, 1878.

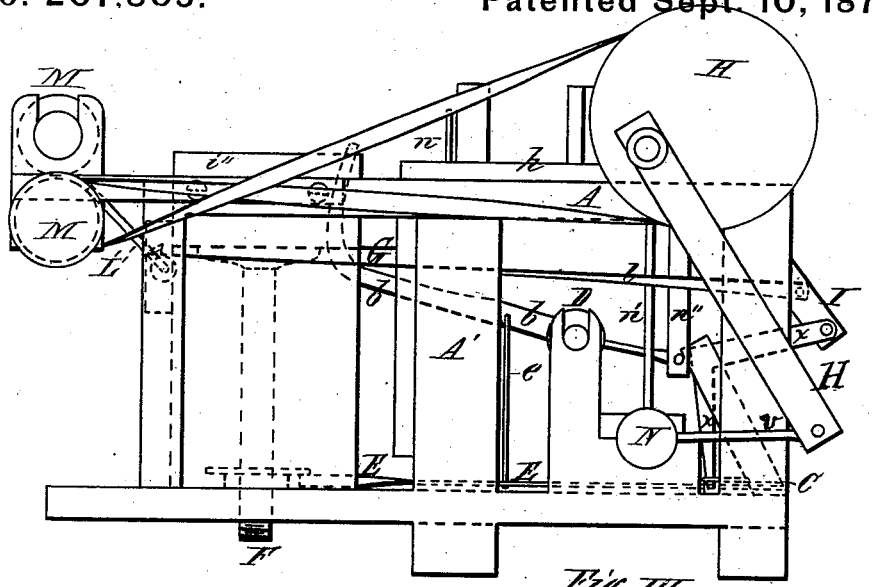

Fig. III

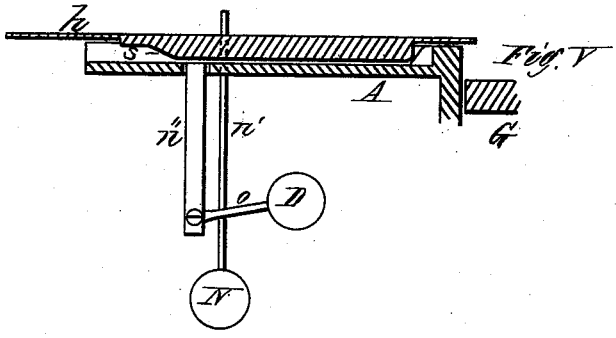

Fig. V

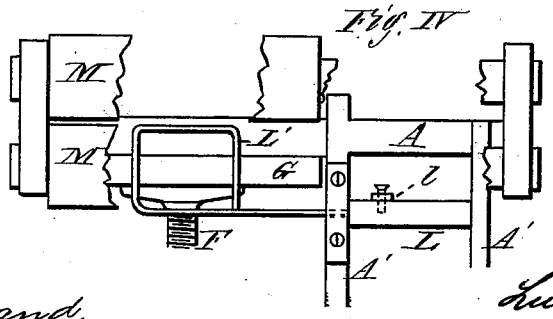

Fig. IV

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UNITED STATES PATENT OFFICE.

LUCIUS HARLOW, OF HOLYOKE, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR FEEDING PAPER.

Specification forming part of Letters Patent No. **207,805**, dated September 10, 1878; application filed March 22, 1878.

To all whom it may concern:

Be it known that I, LUCIUS HARLOW, of Holyoke, in the State of Massachusetts, have invented a new and useful Machine for Feeding Paper; and that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon.

The object of my invention is to feed sheets of paper into any machine in which such paper is to be operated upon, such as counting, folding, printing, calendering, ruling, and many other operations; and my invention consists of a table supported by a frame, upon which is arranged a friction starter or pad having a curvilinear movement, and operated by a shaft and pulley, a reciprocating feeding-slide to push the sheets of paper in succession forward between the rolls, a table or platform made movable in a vertical direction by a screw, ratchet-nut turning thereon, and pawl, the latter being operated by a shaft and eccentric connected with said pawl, a gage arranged to rest or bear upon the paper to be fed, which controls and determines the movement of the pawl which operates the ratchet-nut, and a movable gage which operates to keep the paper piled properly, with each sheet in position to be acted on by the friction starter or pad, and which moves away to permit each sheet to be moved forward between the rolls, all which will be more fully hereinafter described.

Figure I is a perspective view of my invention. Fig. II is a plan view of the same. Fig. III is a side view of the same. Fig. IV is a front view of the movable gage; and Fig. V is a vertical section through one of the slides, or rather through one side of the slide, showing the cam thereon which actuates the gage which controls the vertical movement of the table.

In the drawings, A is a platform supported upon the frame A′. H is a pulley, having its shaft B″ arranged in suitable bearings O; and B is a shaft connected with said shaft B″ by a universal joint, B′, or by suitable geared wheels, so as to cause the said shaft to revolve when the pulley is turned. A rod, *a*, is pivoted to a support, *f*, and connected eccentrically with the shaft B at one end, and provided at the other end with a friction piece or rubber, *a′*, secured firmly thereto.

A slide, *h*, is arranged to move freely on the table A in guides *h′*, and this slide is provided with a point, *m*, and also with a vertical piece, *n*; and a platform, G, is located just in front of this slide, said platform being supported on the vertical screw F, which extends down through the part *t*, and a nut, F′, having ratchet-teeth on its periphery, is made to turn on this screw, said nut resting or bearing upon the floor or part *t*.

The pawl E may be attached at one end to a vibrating lever, C, connected with an elbow, *x*, which is operated upon its pivot by a bar, I, connected with an eccentric or crank pin on the shaft B″ of the pulley H, and the pawl E is provided with a slot, *c*, with which one end of the pivoted angle-lever *e* engages, the other end of said angle-lever *e* engaging with the arm *b* attached to the rock-shaft D, which is made to rock by an elongated piece or cam, *s*, on the lower side of the slide *h*, which, at every movement backward, presses down the arm *n″* attached to the shaft D by the piece *o*. The upper end of this arm *b* is bent inward and over the platform G, so that when the arm drops its extreme end *b′* rests upon the platform or upon the paper piled thereon.

A rod, H′, and arm *v* serve to cause the shaft N to rock, which moves the slide *h* to and fro by means of the arm *n′* projecting from the shaft N and connected with the slide.

The guides *i′* and *i″* are placed each side the platform G to keep the paper in its proper place, and a rod, *l*, attached at one end to the arm 1 and at the other end to the rock-shaft L, serves to cause the gage L′ to move forward out of the way when a sheet of paper is moving forward to pass between the rolls M, the latter being made to revolve by a band passing over the pulley H and over another on one of the rolls M.

D^2 is a bent rod, which, when it is desired, is thrown over into the position shown in dotted lines in Fig. II, with its end resting on the

paper forward of the friction starter or pad a', to assist in holding each sheet firmly in place while the starter is lifting one corner of the sheet to start it or raise it.

The operation of my invention is as follows: The platform G is lowered or depressed to the desired position by disengaging the pawl E from the ratchet-nut F′ and turning the latter backward until the platform G is lowered to the desired point, and a pile of sheets of paper is placed upon the platform, and the latter moved up by turning the nut F′ forward again until the upper end of the guide b, when let drop, will just rest upon the top sheet.

If the pulley H be turned by power or otherwise, the friction rubber starter a' will, as it describes each revolution, rub on the corner of the upper sheet of paper and move that part of the sheet inward and forward; and if the middle portion of the sheet be held from sliding, either by the guide i'' or by the weight of the bent rod D^2 resting upon the sheet, the rear edge of the latter will be raised slightly, and when in this position the slide h moves forward and its point m passes beneath the upper sheet, and as it continues to move forward the vertical piece n strikes against the rear edge of the sheet, (the rubber starter a' having at this time moved upward far enough to release its hold on the paper,) and the sheet is pushed forward between the rolls M, the movable gage L′ moving forward out of the way to permit the uninterrupted forward movement of the sheet between the rolls.

If the paper is a little too high, the guide b will be prevented from dropping quite so low as it otherwise would do, as it will strike and rest upon the paper and be held up, which will cause the bent lever or elbow e to hold the pawl E back from engaging with the ratchet-teeth on the nut F′, so that the platform, instead of being raised, will remain stationary, the nut not being turned until a sufficient number of sheets are fed off from the top, when the guide b, being permitted to drop a little lower, will permit the pawl E to move over into contact with the ratchet-teeth of the nut F′ and turn the platform up faster. In this manner the raising of the platform to just the proper height to permit one sheet to be taken off each time will be regulated. The shaft D is caused to rock and raise the guide b to let it drop upon the paper each time by the piece s on the lower side of the slide h, each time the latter moves back, pressing down on the arm n''. The pawl E is actuated to move the nut F by means of the levers C and x and arm I.

It is, of course, evident that the details of construction of this machine may be changed without changing its nature or substantial operation. For example, instead of the shaft B being connected with the shaft of the pulley H by the universal joint B′, it may be connected therewith by suitable bevel or other gear, and extend from a point near the pulley H straight to a point near the friction-starter a', in which case the shaft B would revolve in precisely the same manner and perform the same functions in connection with the other parts of the machine, and give the same curvilinear movement to the friction-starter a'.

The object of raising the guide b b' is that, after dropping onto the paper to regulate the movement of the pawl E in raising the platform to its proper position, the guide may be caused to release its hold upon the paper to allow the next sheet to be carried off.

For convenience, the vertical piece n may be called a "pusher," and the point m may be called the "separator," as it keeps the upper sheet from the others after the slide moves forward.

Having thus described my invention, what I claim as new is—

1. In a paper-feeding machine, the friction rubber pad or starter a', arranged to move into contact with the uppermost sheet in a pile of paper, in combination with the separator m and pusher n, substantially as and for the purpose described.

2. In a machine for feeding sheets of paper, the guide b b', having a vertical movement, combined with the elbow or pivoted bent lever e, pawl E, nut F′, and screw F, whereby the elevation of the platform carrying the paper is regulated and the paper raised into the proper position to be carried out of the machine, substantially as described.

3. In a machine for feeding sheets of paper, the combination of the vibrating guide L′, the friction rubber pad a', the pusher n, the separator m, and rolls M, substantially as and for the purpose set forth.

LUCIUS HARLOW.

Witnesses:
T. A. CURTIS,
C. E. BUCKLAND.