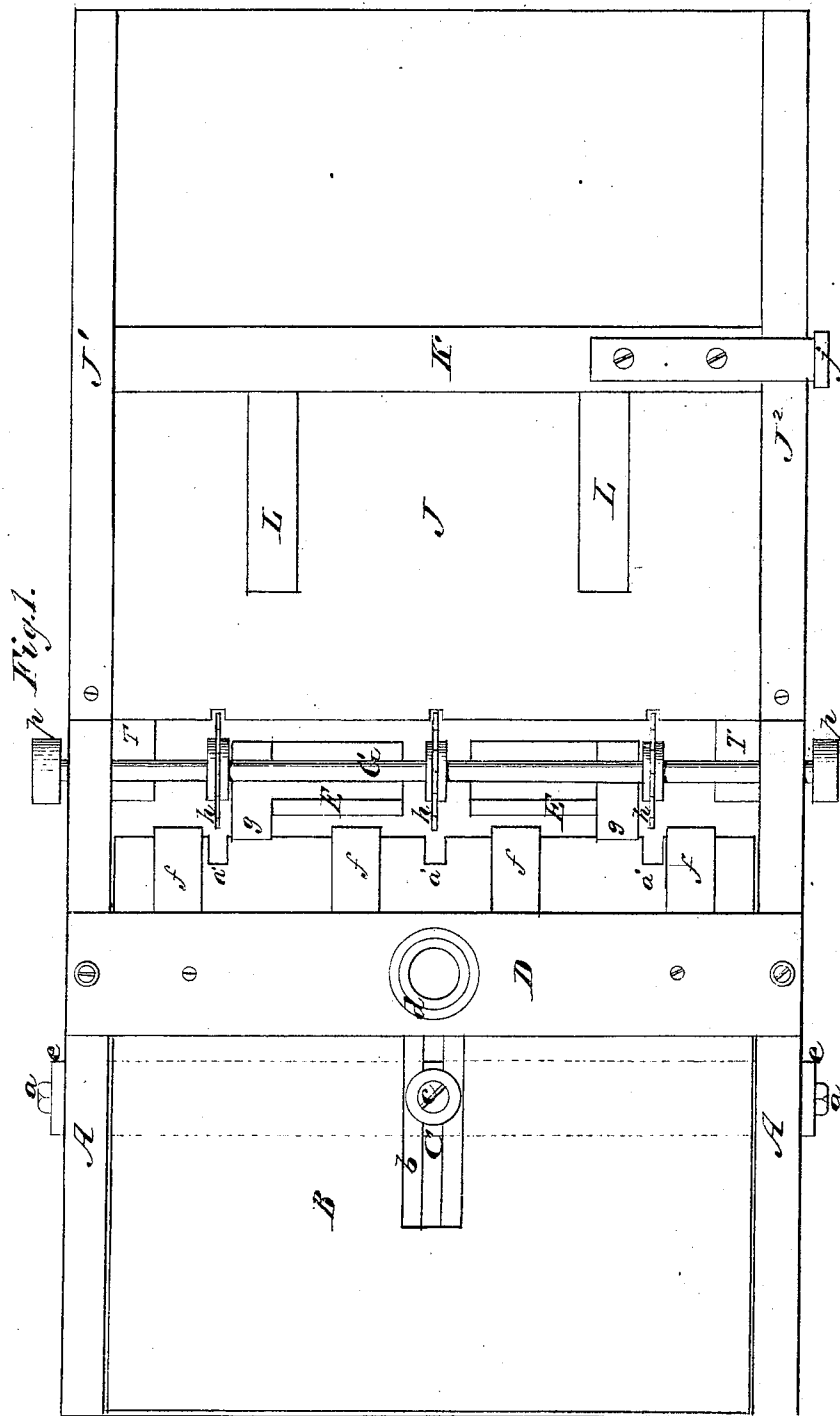


J. T. ASHLEY.
Paper Feeding-Machines.

No. 138,983.

Patented May 20, 1873.



Witnesses.
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J. V. Campbell

Inventor.
John T. Ashley
by
Mason Fenwick & Lawrence

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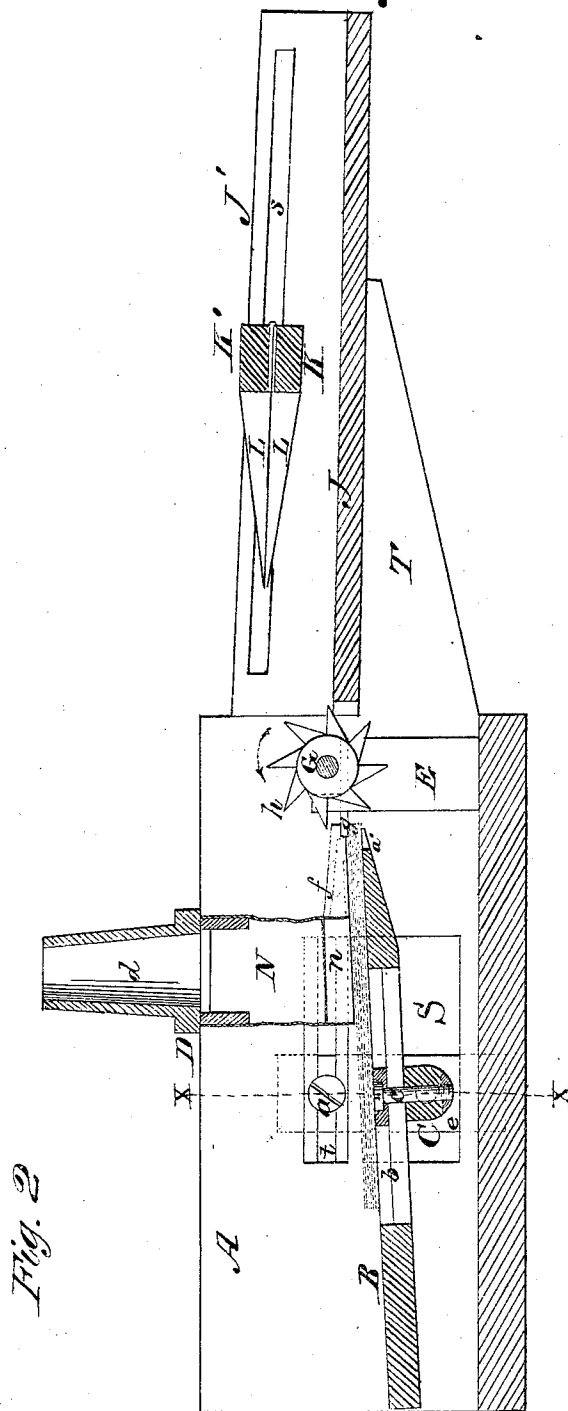


Fig. 2

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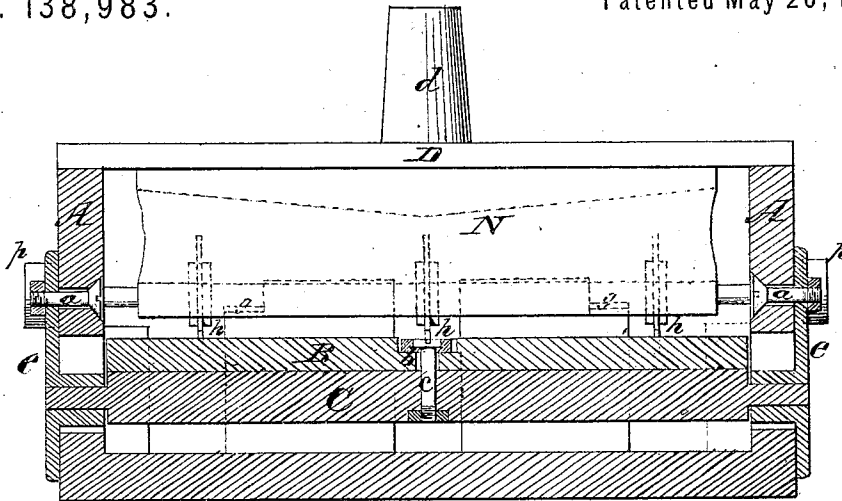


Fig. 3.

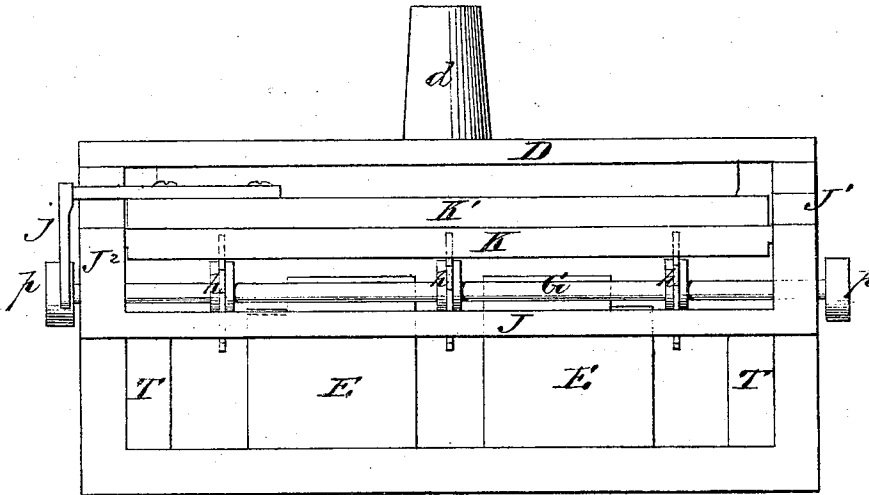


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN THOMAS ASHLEY, OF WILLIAMSBURG, NEW YORK.

IMPROVEMENT IN PAPER-FEEDING MACHINES.

Specification forming part of Letters Patent No. **138,983**, dated May 20, 1873; application filed November 28, 1870.

To all whom it may concern:

Be it known that I, JOHN THOMAS ASHLEY, of Williamsburg, in the county of Kings and State of New York, have invented certain new and useful Improvements on Machinery for Feeding Sheets of Paper to Printing-Presses and other Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1, Plate 1, is a top view of the machine. Fig. 2, Plate 2, is a section taken longitudinally and vertically through the center of the machine. Fig. 3, Plate 3, is a cross-section through the machine in the vertical plane indicated by dotted line *xx* in Fig. 2. Fig. 4, Plate 3, is an elevation of one end of the machine.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to improvements on machinery which is designed for feeding sheets, one at a time, to printing-presses, to calendering-machines, ruling-machines, and other machines requiring to be fed with paper, one sheet at a time. The nature of my invention consists, first, in the combination, with a device which will pick up from a pile of paper, one sheet at a time, of a rotating-stripping device, which latter operates downwardly upon the edges of the pile of paper, and, in imitation of the thumb upon a book in turning over the leaves, will separate the edges of the topmost sheets from the succeeding lower ones during the act of lifting the sheets from the pile, one at a time, thereby insuring the lifting of but one sheet at a time, as will be hereinafter explained; second, in a vertically-vibrating and longitudinally-adjustable table, which is arranged beneath a device that will pick up sheets of paper, one at a time, from a pile of sheets, and which, when properly poised with a pile of paper upon it, will, by the preponderance of one end over the other, move the pile up to the picking-up device as rapidly as the sheets are removed from the pile, as will be hereinafter explained; third, in supporting the oscillating bar, to which the said table is adjustably secured by means of journal-boxes or bearings, which are both longitudinally and

vertically adjustable, whereby the table can be adapted to receive a greater or less number of sheets, as will be hereinafter explained; fourth, in the combination of reciprocating grippers, with a device which will pick up sheets of paper, one at a time, from a pile of paper, said grippers being arranged and operated so as to take the sheets from the picking-up device and deliver them upon a feed-board, on which they are properly adjusted, and then carried off and delivered to a printing-press or other machine which it is required to feed with sheets of paper, one sheet at a time, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will explain its construction and operation.

In the accompanying drawing, *A A* represent the two vertical sides of the frame which contains the devices for supporting and picking up the sheets, and *T T* represent brackets which extend out from said sides *A A* and support a shelf or feed-board *J*, on which the sheets of paper are delivered after being taken from the picking-up device. Near the front part of the frame, and extending transversely across from one side *A* to the other, is a pneumatic picking-up device, which may be constructed in any suitable manner, which will render it certain in the operation of picking up sheets of paper from a pile, one sheet at a time. I prefer, however, to construct this device substantially as represented in the drawing, and as I will now explain: *D* represents a piece which is secured to the upper edges of the sides *A A*, and which forms the top of a chest or bellows, *N*, the sides and ends of which are made flexible, and the bottom *n* of which is made of two pieces, hinged together at their ends. To the front parts of the bottom pieces of this chest *N*, and communicating with the interior thereof, are secured hollow fingers *f f*, which are arranged at proper distances apart, and perforated near their front ends through their bottom sides. By means of a pipe, which will be connected to a nozzle *d* and to a pneumatic suction-engine, air will be drawn through the fingers *f* and through the chest *N*, and when a sheet of paper is held up to the fingers *f*, so as to close their perforations, the bottom of the chest, together with

the sheet, will rise. This pneumatic picking-up device is similarly constructed to the one described in the schedule annexed to my letters patent of the United States numbered 107,851; and, if desirable, it may be movable, both vertically and horizontally.

Beneath the picking-up device herein explained, or any other suitable equivalent thereof, I arrange a table, B, on which the paper to be fed from the machine is adjusted in a pile. The table B is secured across a horizontal transverse rocking-bar, C, by means of a set-screw, *c*, which passes through a longitudinal slot, *b*, made vertically through this table, as clearly shown in Figs. 1, 2, and 3. The rocking bar C has its end bearings in journal-boxes *e*, which are secured by clamp-screws *a a* to the sides A A of the main frame. The journal-boxes or bearings *e e*, as well as the clamp-screws *a a*, are applied in slots made through the sides A A, so that, by loosening the said screws, the table B, with its rocking bar C, may be adjusted vertically or longitudinally, and again fixed at any desired point. The front edge of the table B is arranged beneath flexible strips *g g*, which may be made of India rubber or other suitable material, and which are secured on top of elevated portions E E at the front end of the frame.

After arranging a pile of paper upon the front part of the table B, the screw *c* is loosened and the table is adjusted longitudinally so that that part of it in rear of the bar C will slightly preponderate, and with a very gentle pressure hold the front edge of the top sheet of the pile up against the flexible strips *g g*. The set-screw *c* is then tightened and the machine is ready for operation. It will be seen that as sheet after sheet of paper is removed from the pile, that end of the table on which the pile lies will rise and continue to do so until the last sheet has been removed; also, that as the front edge of one sheet is removed from beneath the overhanging strips *g* another sheet will take its place, thus keeping the highest sheet of the pile of paper at one given distance from the picking-up fingers *f f* when they are in position for picking up a sheet.

In the front of the table B, and extending transversely across the main frame, is a rotary shaft G, carrying pulleys on its extremities, over which belts pass that rotate said shaft. On this shaft G a number of rotary stripping-wheels are secured, which consist of flexible frictional projections *h*, of India rubber or other suitable material confined to hubs, as shown in Figs. 1 and 2. The flexible projections *h* may be made like saw-teeth, or of any

other shape found best adapted to the purpose intended. These rotary strippers are so arranged relatively to the front edges of the topmost sheets on the pile of paper lying on table B, that as they rotate their points or extremities will successively strike upon and draw over the edges of the paper, and thus operate as separators, and prevent the front edge of a sheet which is being lifted from the pile from lifting or displacing the succeeding lower sheet. If desirable, similarly constructed strippers may be applied to the sides of the frame A, so as to operate upon both sides of the pile of paper.

When the picking-up device elevates a sheet of paper to the proper height, the sheet is taken hold of by its front edge by means of grippers L L, and when released from the picking-up device these grippers recede, carry with them the sheet, and deliver it upon the board J. The grippers are applied to rectilinear reciprocating bars K K', which are hinged together and guided by slots or ways *s s* made through the longitudinal ledges J' J² of the board J. The board J, will in practice, be provided with an obliquely-arranged rolling or endless bed, which will move the sheets of paper, as they are received upon it, both forward and laterally, and thus bring one edge of each sheet squarely against one or the other of the ledges J¹ J², which will properly adjust the sheet for its reception into a printing-press or other machine.

I do not claim a feed-table which is suspended by a spring; as this is shown in the English patent No. 3,318 for 1868.

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

1. The self-adjusting table B, supported by means of an oscillating bar C, and adjustable bearings *c*, substantially as described.

2. The stripping flexibly-pointed wheels *h*, in combination with the table B, substantially as described.

3. The arrangement and combination of the strippers *h* with the feed-table B, and reciprocating-grippers L, substantially as described.

4. A feed-table B, which is supported by oscillating bearings and arranged beneath a paper picking-up device in combination with fingers *g*, against which the paper on the table is pressed by the weight of the outer or rear end of the table, substantially as described.

JOHN THOS. ASHLEY.

Witnesses:

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