

(No Model.)

4 Sheets—Sheet 1.

T. A. BRIGGS.
PAPER FEEDING MACHINE.

No. 499,818.

Patented June 20, 1893.

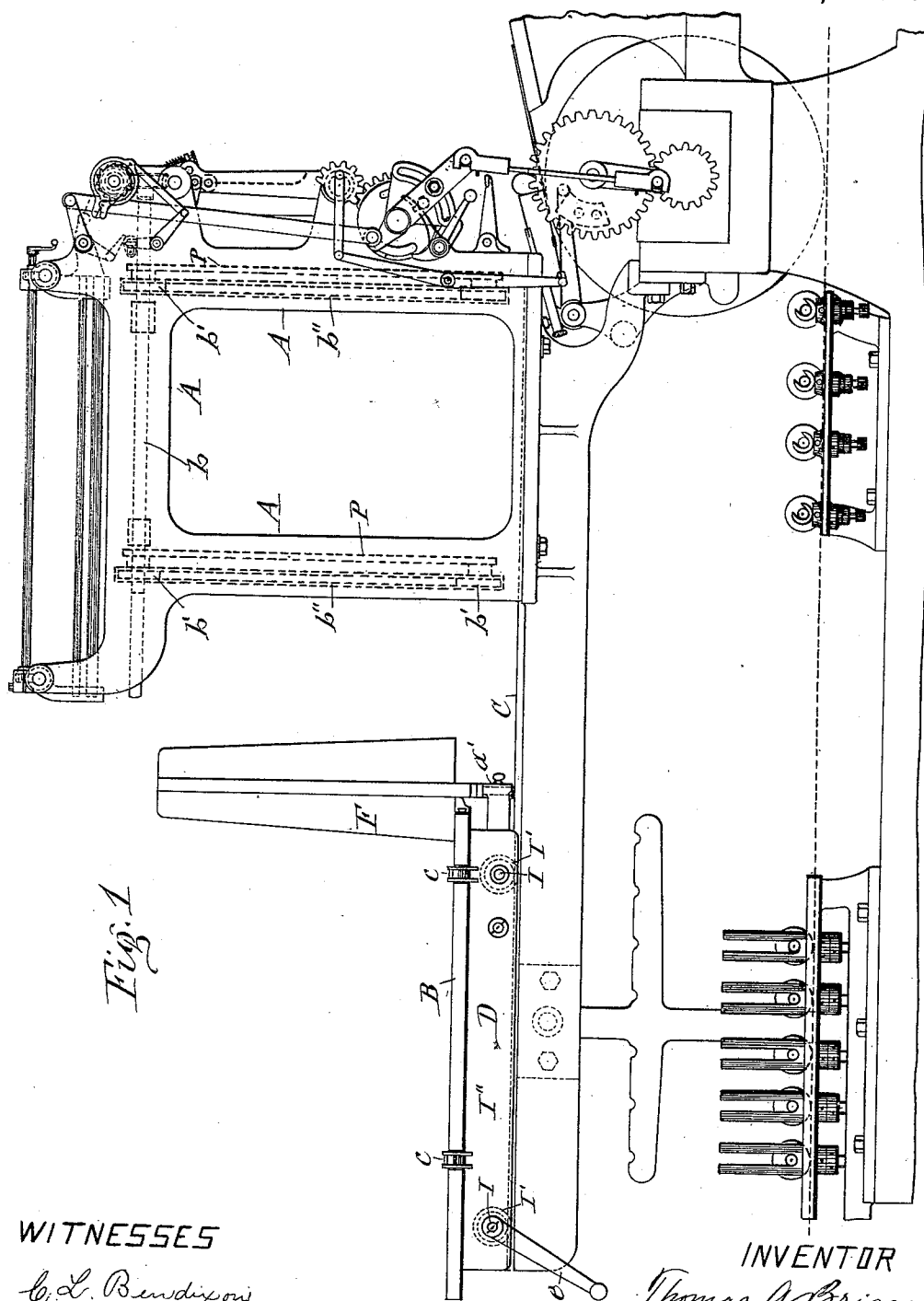


Fig. 1

WITNESSES

C. L. Bendixon
J. J. Gause

INVENTOR

Thomas A. Briggs
By Hull, Laessle & Smith
his Attorneys

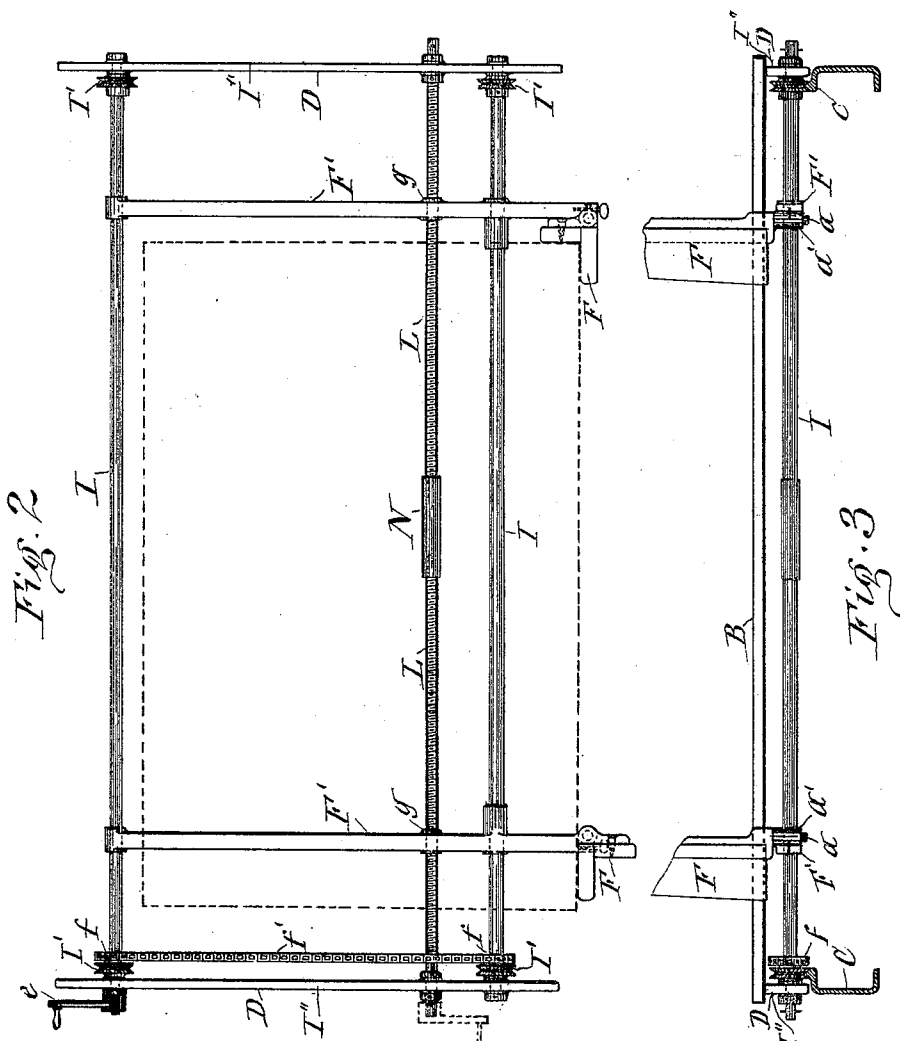
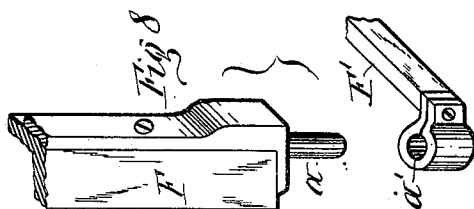
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4 Sheets—Sheet 2.

T. A. BRIGGS.
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WITNESSES

C. L. Bendixon
J. J. Laas

INVENTOR:

Thomas A. Briggs
By Bull, Laas & Bull
his Attorney

(No Model.)

4 Sheets—Sheet 3.

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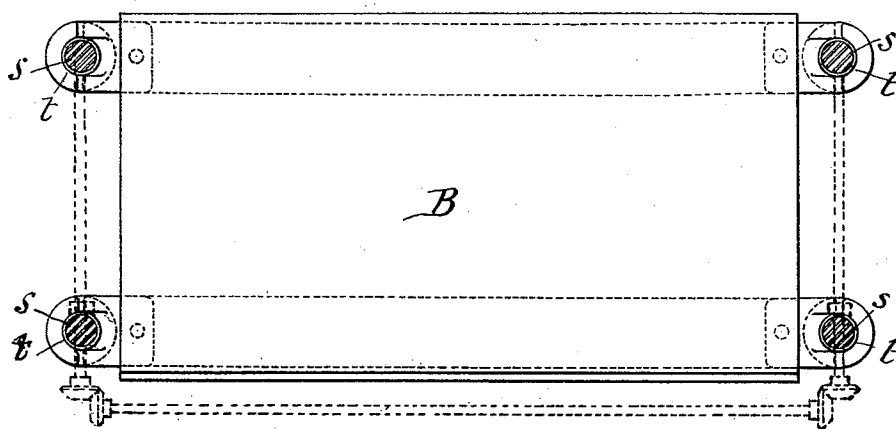


Fig. 4

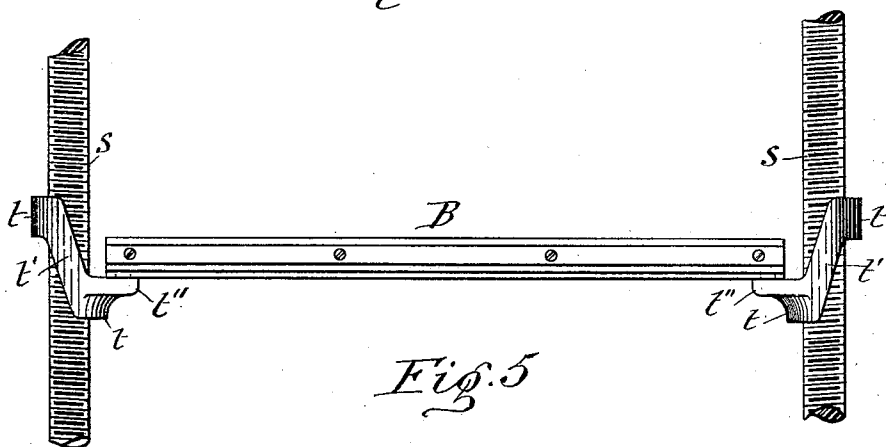


Fig. 5

WITNESSES

C. L. Boudignon
J. J. Laas

INVENTOR:

Thomas A. Briggs
By Smith, Laas & Smith
his Attorneys

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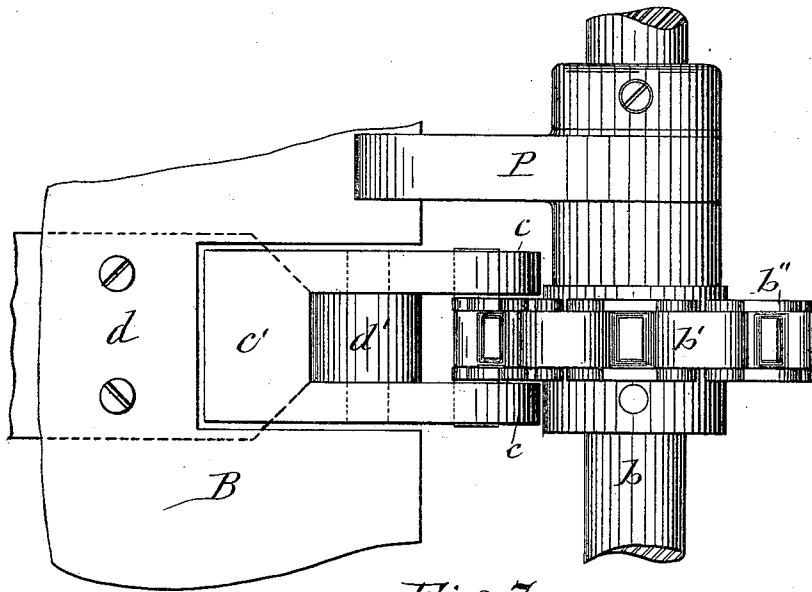
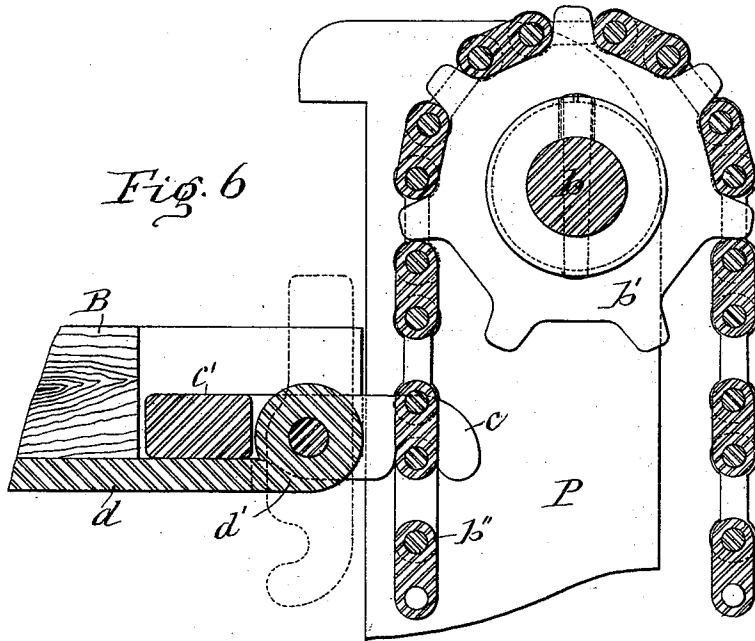


Fig. 7

WITNESSES:

C. L. Bendixson
J. J. Saasz

INVENTOR:

Thomas A. Briggs
By Smith, Lassar & Smith
his Attorney.

UNITED STATES PATENT OFFICE.

THOMAS A. BRIGGS, OF ARLINGTON, MASSACHUSETTS.

PAPER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 499,818, dated June 20, 1893.

Application filed May 25, 1892. Serial No. 434,363. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. BRIGGS, of Arlington, in the county of Middlesex, in the State of Massachusetts, have invented new and useful Improvements in Paper-Feeding Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of machines which automatically feed sheets of paper individually from a pile to either a printing press or other machine designed to operate on single sheets. And the invention has special reference to the arrangement of the table which supports the pile of paper to be fed as aforesaid.

The chief object of the invention is to avoid as much as possible delay in the delivery of the pile of paper to the feeding machine, and the further object of the invention is to provide simple and efficient means for lifting the paper-supporting table so as to carry the top of the pile of paper to the plane of the feed. And to that end the invention consists essentially in the combination, with the paper-feeding machine, of a paper-supporting-table arranged movably horizontally to and from under the feed-mechanism of said machine, as hereinafter described and set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of a paper-feeding machine equipped with my improved devices for delivering the paper thereto. Fig. 2 is a plan view of the carriage employed for conveying the paper-supporting table to and from the paper-feeding machine. Fig. 3 is an end view of said carriage with said table mounted thereon. Figs. 4 and 5 are respectively plan and front views of modifications of the vertically movable paper supporting table. Figs. 6 and 7 are respectively an enlarged sectional side view and a top view of the table elevating devices, and Fig. 8 is an enlarged detail view of the pivoted connection of the paper guides to the carriage of the paper supporting table.

Similar letters of reference indicate corresponding parts.

A—represents the main supporting frame of the paper feeding machine, the mechanism of which may be of any desired form:

B—denotes the table upon which is piled

the paper to be operated on by the aforesaid feeding machine. In order to expedite the delivery of the piles of paper to said machine I employ two or more of the aforesaid tables adapted to be placed interchangeably under the paper feeding mechanism of the machine. For conveying the said table —B— with the paper piled thereon to the paper feeding machine, I provide the frame —A— with tracks —C—C— extending from under the paper-feeding machine a sufficient distance rearward to accommodate back of said machine a carriage —D— with one of the paper-supporting tables —B— mounted thereon as represented in Fig. 1 of the drawings.

In the operation of the feed-machine the attendant piles the paper on the table —B— with the edges of the paper evenly and in proper position to be subsequently operated on by the feed mechanism which transfers the paper successively in separate sheets to the printing-machine or other machine. To enable the attendant of the machine to properly pile the paper as aforesaid I provide the front of the carriage —D— with vertical guides —F—F— of L-shape in cross-section, and pivoted at the angle of the L to allow them to be turned so as to allow the paper to be piled with one of the front corners thereof in the corner of either of the said guides as may be desired or required by the paper-feeding mechanism to be subsequently operated on the pile of paper. The said guides are mounted on the carriage by gudgeons —a— extending downward from the bottoms of the guides and inserted removably in sleeves —a'— fixed to the carriage —D— as hereinafter described. These guides are to be removed after the paper has been piled on the table —B— and before the carriage is moved to the paper-feeding machine. To lift the said table from the carriage and to a proper elevation to bring the top of the pile of paper to the plane of the feed of the paper feeding machine I employ a suitable elevator, for which purpose I preferably employ horizontal shafts —b—b— on opposite sides of the frame —A— and mounted in suitable bearings on said frame. To each of said shafts I fasten sprocket-wheels —b'—b'— and beneath these wheels is a corresponding set of sprocket-wheels —b'—b'— pivoted to the

lower ends of vertical plates —P—P— which are suspended from the shafts and serve as side-guides for the table —B. Upon each pair of upper and lower sprocket-wheels runs a sprocket-chain —b''. Said chains receive intermittent longitudinal motion automatically from the driving mechanism of the paper feeding machine as explained in another application for Letters Patent, Serial No. 436,567, filed by me June 13, 1892.

To the side edges of the table —B— I connect hooks —c—c— adapted to engage the chains —b''—b''— so as to cause the table to be elevated by the movements of said chains. To facilitate the connection and disconnection of the hooks to and from the chains I pivot said hooks so as to allow them to be swung in a vertical plane, and in order to insure the attachment of the hooks to the table and at the same time brace the latter and prevent it from warping, I attach to the under side of the table metallic straps or bars —d—d— extending completely across the table and terminating with upwardly projecting ears —d'—d'— to which the hooks are hinged as shown in Figs. 6 and 7 of the drawings.

The hooks —c—c— are formed with inward extensions —c'—c'— by which they bear on the tops of the straps —d—d— when the hooks are engaged with the chains.

The side edges of the table —B— are in proximity to the inner edges of the vertical plates —P—P— by which the table is guided in its vertical movement.

The carriage —D— I prefer to form of two or more shafts —I—I— extending at right angles across the two tracks —C—C— and having the wheels, —I'—I'— fixed to the ends of the shafts. Said shafts are maintained a uniform distance apart by means of bars —I''—I''— coupling the shafts together, as shown in Fig. 2 of the drawings. For propelling the carriage I prefer to connect to the rear shaft a suitable crank —e— and in order to apply the propelling power to both shafts —I—I— I attach thereto sprocket-wheels —f—f— connected by a sprocket chain —f'—. Upon the said shafts I mount the bases —F'—F'— of the paper guides —F—F— hereinbefore referred to, said bases consisting of bars disposed at right angles to the shafts —I—I— and provided with eyes through which the shafts pass loosely so as to allow said bars to be shifted laterally and thus adjust the guides to the requisite position to bear on the corner of the pile of paper supported on the table —B. The front ends of the bars —F'—F'— extend beyond the front edge of the said table and have affixed to them the sleeves —a'—a'— for the reception of the gudgeons —a—a— on the lower ends of the guides —F—F— as hereinbefore described. For adjusting the said guides as aforesaid I provide the bars —F'—F'— thereof with nuts —g—g— and journal in each of the carriage-bars —I'— a separate screw —L— which passes through the nut —g— of the adjacent guide-base —F'. The

inner ends of the two screws are coupled together and supported by a swivel —N— which allows each screw to be turned independent of the other.

By applying a wrench to either of said screws the guide-base —F'— connected thereto is moved laterally to adjust the guide —F— to the required position. The tops of the bars —I'—I'— are in a plane above all other parts of the carriage, and upon said bars is placed the paper supporting table —B. The attendant of the machine moves the carriage —D— back from the paper feeding machine to the position shown in Fig. 1 of the drawings, and while in this position the table —B— is placed upon the carriage, and the paper piled upon said table evenly and with the front of the pile against the guides —F—F—, one of which latter is set in a position to bear at the same time on the side of the pile as indicated by dotted lines in Fig. 2 of the drawings. Then the carriage is moved forward until the table —B— is carried to a position to allow the hooks —c—c— to be connected to the sprocket-chains —b''—b''— by which the table is lifted from the carriage as hereinbefore described. As soon as this is effected the attendant moves back the carriage, places thereon another table —B— and deposits a pile of paper on said table preparatory to conveying the same to the paper feeding machine as aforesaid.

I do not wish to be limited to the use of the chains —b''—b''— and hooks —c—c— for elevating the table —B—, inasmuch as the same can be effected by means of rotary vertical screws —s—s— to each of which are connected two half-nuts —t—t— arranged one above the other and respectively at opposite sides of the screw and united by longitudinal straps —t'— as shown in Fig. 5 of the drawings. Said half nuts can be readily thrown laterally out of engagement with the screw and thus quickly slipped to the bottom of the screw when desired. Each of the lower half-nuts is on the inner side of the screw and formed with a lateral offset or shoulder —t''— by which it carries the table —B.

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

1. In a paper feeding machine, the combination of a carriage movable to and from said machine, two vertical paper guides of L-shape in cross-section rising from the carriage and pivoted at the angle of the L to allow the paper to be piled against either of said guides, and a paper supporting table mounted on said carriage as set forth.

2. In a paper-feeding machine, the combination of a carriage movable to and from said machine, vertical paper guides rising from said carriage and movable laterally thereon, nuts connected to the bases of said guides, horizontal screws journaled on the carriage and engaging said nuts, and a paper-supporting table mounted on the carriage, as set forth and shown.

3. In a paper-feeding machine, the combination of tracks under said machine and extending rearward therefrom, wheels mounted on said tracks, shafts connecting said wheels and fixed thereto, bars coupling said shafts together, sprocket-wheels fixed to the shafts, a drive-chain connecting said sprocket-wheels, a crank applied to one of the shafts, and a paper-supporting table mounted on the aforesaid coupling-bars as set forth.

4. In a paper-feeding machine, the combination of tracks under said machine and extending rearward therefrom, wheels mounted on said tracks, shafts connecting said wheels, bars coupling the shafts together, vertical paper guides rising from bases mounted on said shafts and movable lengthwise of the latter, nuts on said bases, screws journaled on the aforesaid coupling-bars and engaging the said nuts, and a paper-supporting table mounted on the aforesaid coupling-bars, substantially as described and shown.

5. In a paper-feeding machine, the combination of tracks under said machine and extending rearward therefrom, a carriage mounted on said tracks, vertical paper-guides rising from bases mounted movably laterally on the carriage, nuts on said bases, screws journaled to the carriage-frame and engaging the nuts, and a swivel connecting the screws to each other at their inner ends as set forth and shown.

6. In a paper feeding machine, the combination of a plurality of paper-supporting tables, movable interchangeably to and from under the feed mechanism of said machine, hooks on said tables, horizontal shafts journaled to opposite sides of the frame of the machine, sprocket-wheels fixed to said shafts, plates suspended from the shafts, sprocket-wheels pivoted to the lower ends of said plates, sprocket-chains on said wheels adapted to engage the aforesaid hooks, and means for rotating said shafts as set forth.

7. In combination with the main supporting frame of the paper feeding machine, horizontal shafts on opposite sides of said frame, sprocket-wheels attached to said shafts, and sprocket-chains running on said wheels, a vertically movable paper-supporting table, metallic straps extending across the under side of said table and fastened thereto, and hooks hinged to the ends of said straps and adapted to engage and release the chains and provided with inward extensions bearing on the straps when the hooks engage the chains, substantially as described and shown.

In testimony whereof I have hereunto signed my name this 29th day of April, 1892.

THOMAS A. BRIGGS. [L. s.]

Witnesses:

MARK W. DEWEY,
H. M. SEAMANS.