

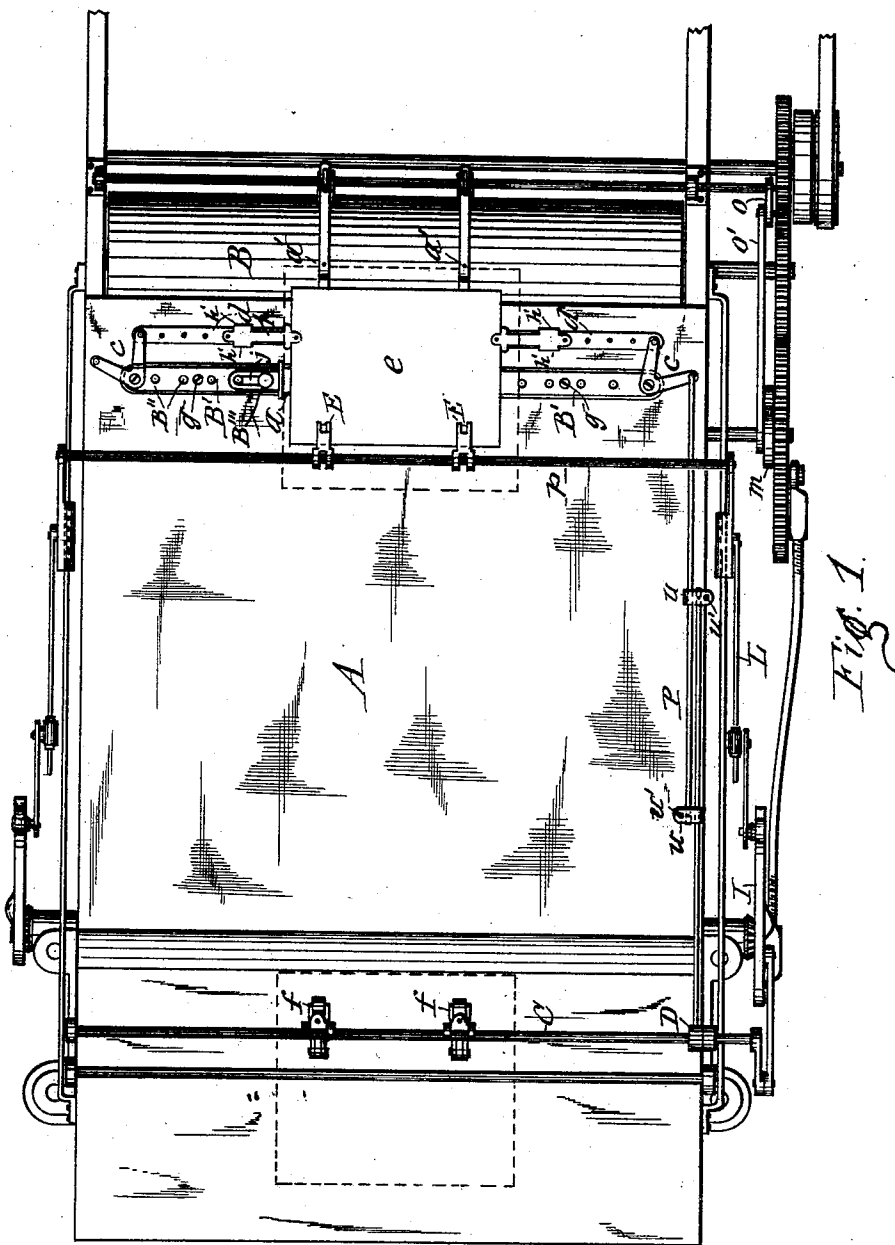
(No Model:)

5 Sheets—Sheet 1.

T. A. BRIGGS.
PAPER FEEDING MACHINE.

No. 487,513.

Patented Dec. 6, 1892.



WITNESSES:

C. L. Bendixson
H. M. Seamans

INVENTOR:

Thomas A. Briggs
By Knott, Lassar & Knott
his ATTORNEYS.

(No Model.)

5 Sheets—Sheet 2.

T. A. BRIGGS.
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Patented Dec. 6, 1892.

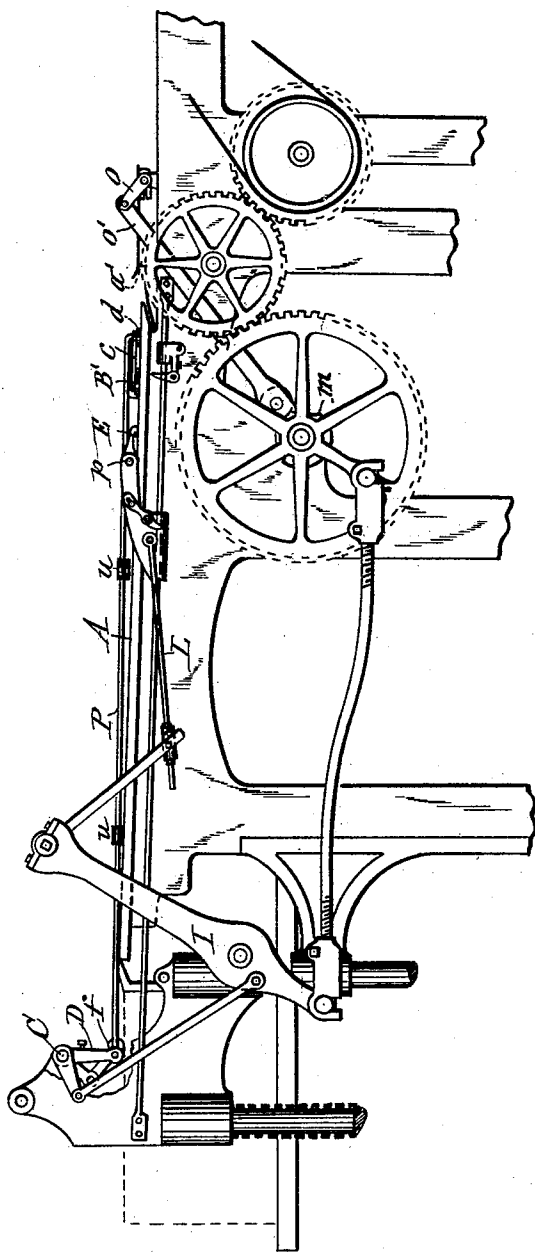


Fig. 2

WITNESSES:

C. L. Bendixon
H. M. Seaman

INVENTOR:

Thomas A Briggs
By Smith, Leass & Dall
his ATTORNEYS.

(No Model.)

5 Sheets—Sheet 3.

T. A. BRIGGS.
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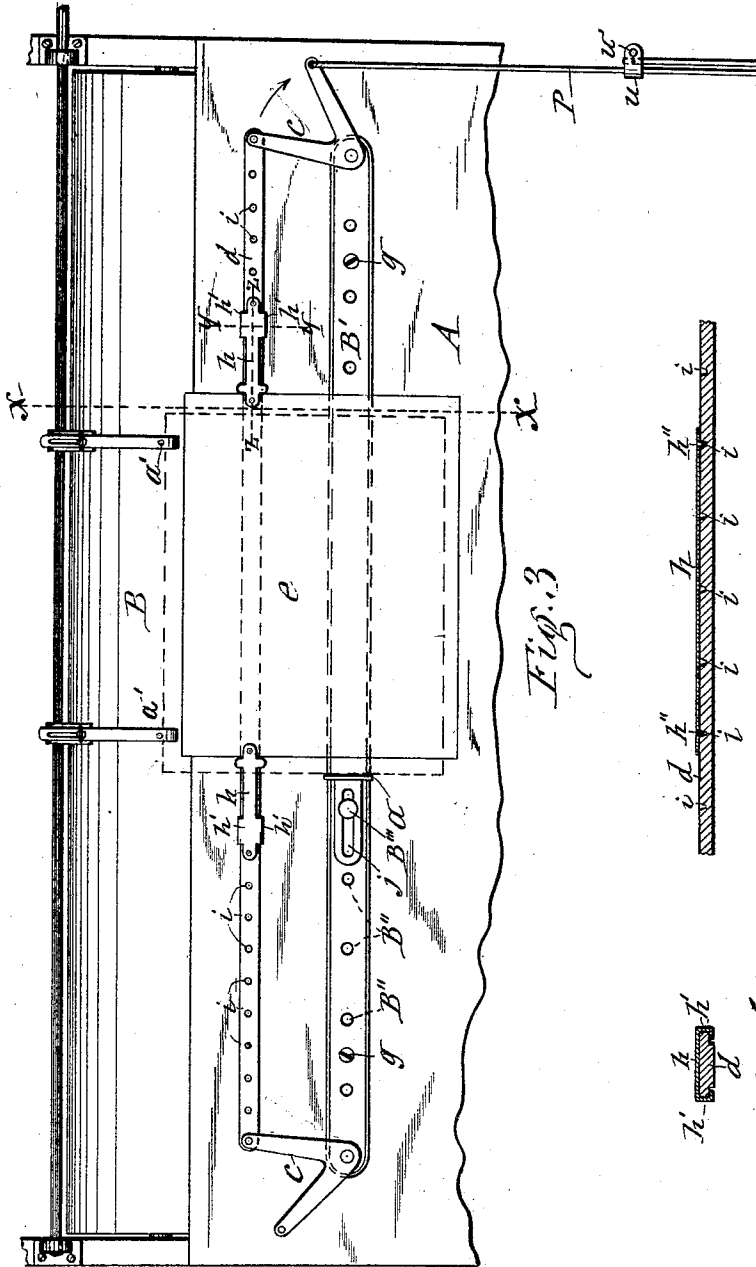


Fig. 3

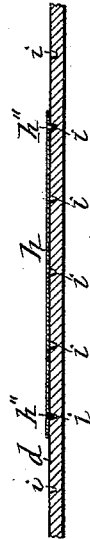


Fig. 6



Fig. 5

WITNESSES:

L. L. Bendixon
H. W. Seaman

INVENTOR:

Thomas A. Briggs
By Hunt, Lacey & Hunt
his ATTORNEYS.

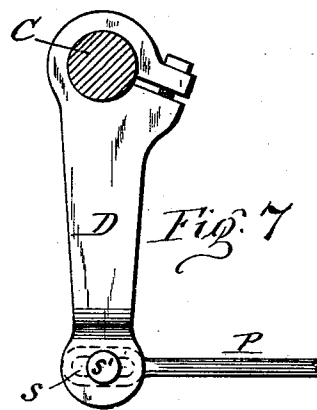
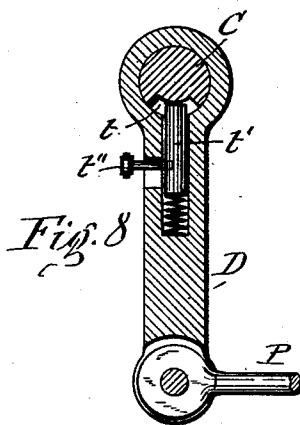
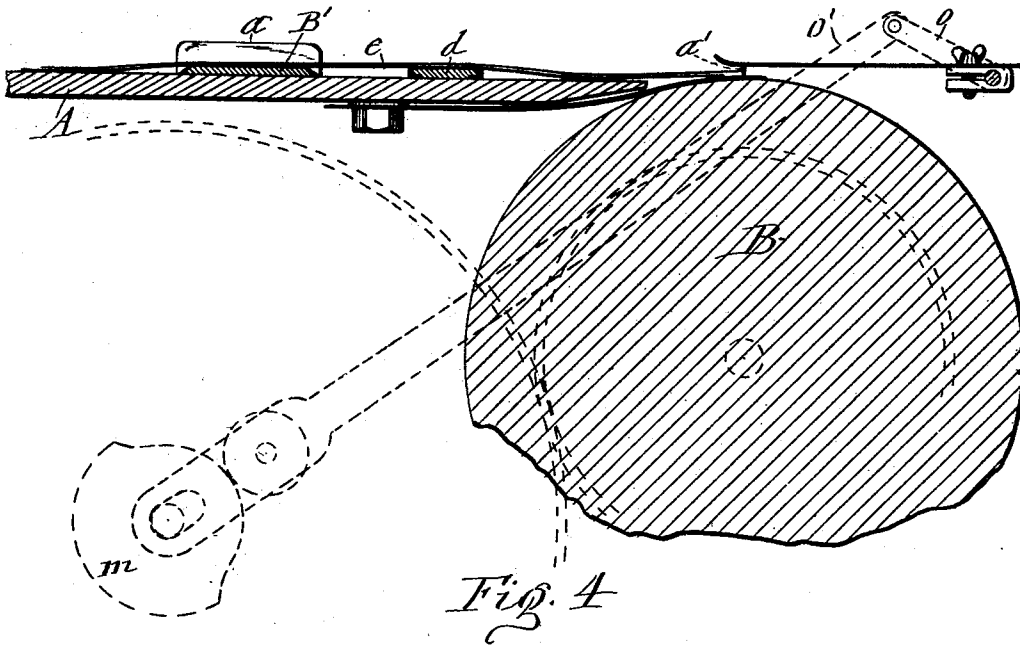
(No Model.)

5 Sheets—Sheet 4.

T. A. BRIGGS.
PAPER FEEDING MACHINE.

No. 487,513.

Patented Dec. 6, 1892.



WITNESSES:

C. L. Burdison
H. M. Seamans

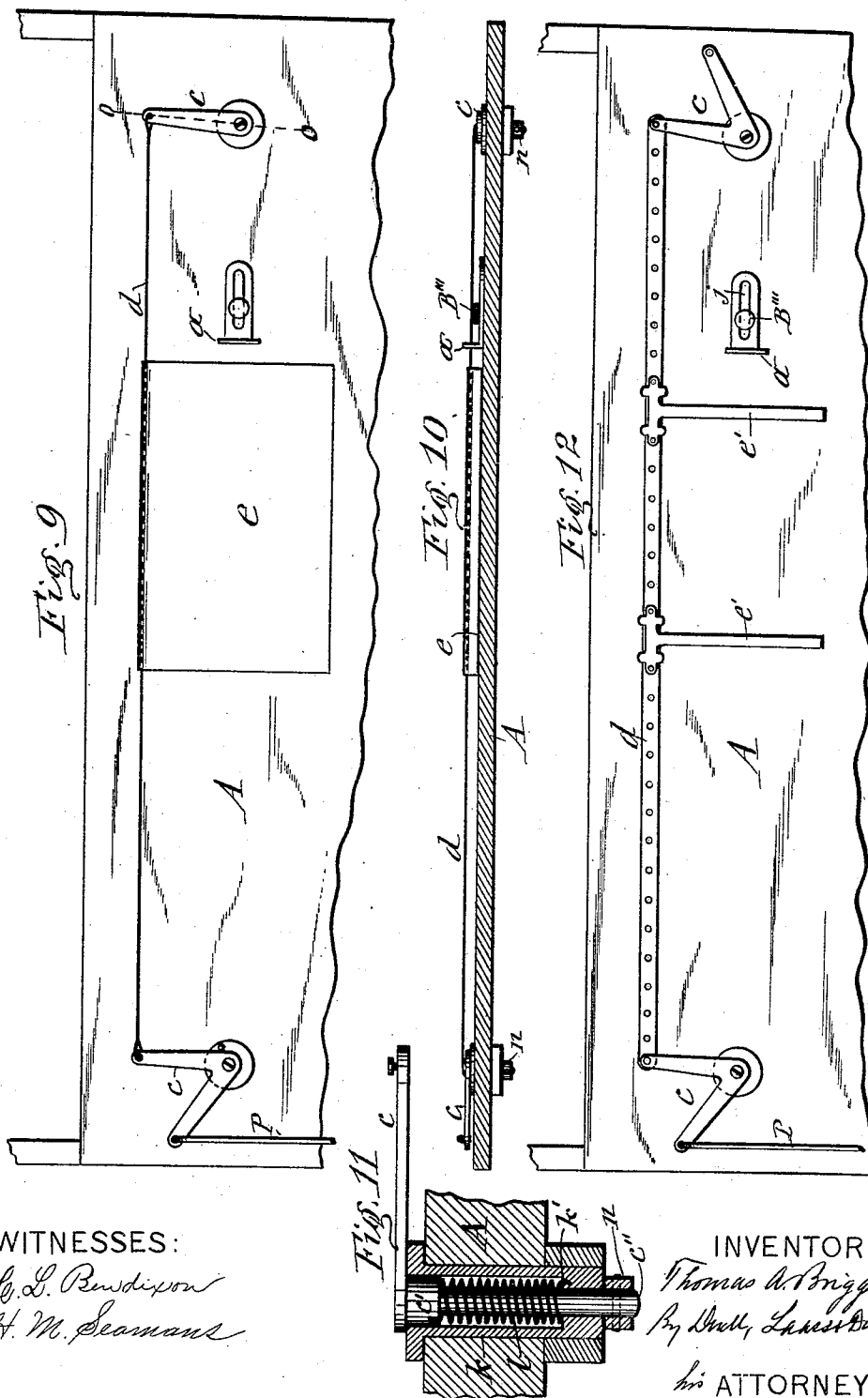
INVENTOR:

Thomas A. Briggs
By Hull, Laass & Hull
his ATTORNEYS.

T. A. BRIGGS.
PAPER FEEDING MACHINE.

No. 487,513.

Patented Dec. 6, 1892.



WITNESSES:

C. L. Buxdixon
H. M. Seamans

INVENTOR:

Thomas A. Briggs
By Dull, Lanes & Dull
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS A. BRIGGS, OF ARLINGTON, MASSACHUSETTS.

PAPER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 487,513, dated December 6, 1892.

Application filed March 21, 1892. Serial No. 425,668. (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 is designed to be applied to the paper-feed table of either a printing-machine or paper-folding machine or other analogous machine requiring the sheets of paper to be accurately adjusted in their position preparatory to entering the aforesaid machine; and the object of this invention is to accomplish the aforesaid adjustment of the sheets of paper automatically and in a reliable manner; and to that end the invention consists in the novel construction and combination of mechanisms hereinafter described, and set forth in the claims.

In the annexed drawings, Figure 1 is a top plan view showing my invention applied to the paper-feeding machine of a printing-machine. Fig. 2 is a side elevation of that portion of the machine to which my invention is applied. Fig. 3 is an enlarged top plan view of an automatic paper-gaging or registering device embodying my invention. Fig. 4 is a further enlarged transverse section on line *x x* in Fig. 3. Fig. 5 is an enlarged transverse section on line *y y*, Fig. 3. Fig. 6 is an enlarged longitudinal section on line *z z*, Fig. 3. Figs. 7 and 8 illustrate different modes of affording a limited lost motion to the pitman, which transmits motion to the automatic gaging or paper registering devices. Figs. 9 and 10 are respectively plan and edge views of a modification of the paper-gaging devices. Fig. 11 is an enlarged vertical transverse section on line *o o*, Fig. 9; and Fig. 12 is a plan view of a further modification of the paper-gaging devices.

Similar letters of reference indicate corresponding parts.

A represents the table upon which the sheets of paper are fed either to the impression-cylinder B of a printing-machine, as shown, or to any other machine requiring the sheets of paper to be properly adjusted in their position preparatory to receiving the

same. Adjacent to the delivery end of said table I place my improved paper-adjuster, which is movable diagonally in relation to the line of feed of the paper and carries the paper so as to bring the front edge and the advancing side edge thereof against the gages *a* and *a'*, and thereby cause said paper to be brought into its requisite position in relation to the printing-machine or other machine designed to operate on said paper. Said paper-adjuster consists, essentially, of horizontal oscillatory two-armed levers *c c*, disposed, respectively, at opposite sides of the paper-feeding path and preferably pivoted to opposite ends of a flat thin bar *B'*, which extends across the top of the table A, and is firmly secured thereto by screws *g g*, passing through the bar and into the table. The longitudinal edges of said bar are beveled to obviate obstructions to the passages of the paper and of the gripper-arms *E E*, which carry the paper to the delivery end of the table. Each of the levers *c* has one of its arms extending forward, and to the free ends of said arms of the levers is connected a tie *d*, preferably of the form of a bar extending across the feed-table and pivoted at opposite ends to the aforesaid lever-arms. To said tie is attached a paper receiving and carrying device *e*, by which the paper is brought in contact with the gages, which adjust the paper to its requisite position. For simplicity of construction I prefer to from the said paper receiving and carrying devices as follows: To the bar *d* I attach suitable clamps *h h*, to which I connect the side edges of the front portion of a sheet *e* of paper or other analogous material. These clamps I prefer to form of spring-metal plates mounted on the bar *d* and formed intermediate of their lengths with lips *h' h'*, which embrace opposite edges of the bar *d*, and thus confine the plates laterally on the bar. The two end portions of each of said plates are provided with downwardly-projecting lugs *h'' h''*, which register with and enter two of a series of sockets *i i*, formed in the bar and distributed equidistantly apart over the length thereof. The side edges of the leaf *e* are inserted under the inner end portions of the plates *h h*, and are thereby clamped upon the bar *d*. The lugs *h'' h''*, passing through the

leaf *e*, serve to firmly hold the same. The described clamps can be adjusted in their position to accommodate leaves *e* of different widths, according to the width of paper to be fed to the printing-machine or other machine. Said adjustment is readily effected by prying up the inner ends of the plates *h h* sufficiently to release the lugs *h'' h''* thereat from the sockets *i i* in the bar *d*. The lugs on the opposite or outer ends of the plates are short and beveled to allow them to slip out of the sockets *i i* when end pressure is applied to said plates. In this manner the plates *h h* can be shifted longitudinally on the bar *d* to bring said plates in proper position to clamp the leaf *e*.

When I employ the stationary bar *B'*, I attach thereto the gage *a*, which I also render adjustable longitudinally on said bar for the purpose aforesaid by providing said bar with a series of screw-threaded eyes *B'' B''* for the reception of the attaching-screw *B'''*, which passes through a slot *j* in the base of the gage *a*, as shown in Fig. 3 of the drawings. I do not, however, wish to be limited specifically to the aforesaid construction of the paper-adjuster, inasmuch as it is susceptible of modifications of its details—as, for instance, the substitution for the leaf *e* of thin fingers *e' e'* of either metal or wood or other suitable material firmly secured to the bar *d*, as shown in Fig. 12 of the drawings; or in lieu of the stiff bar *d* a stout cord or wire may be employed, as shown in Figs. 9 and 10 of the drawings, in which case the leaf *e* has to be attached thereto by the front edge of the leaf being folded around said cord or wire and lapped onto the opposite side of the leaf and pasted or otherwise fastened thereon. When the said cord or wire is employed, I hold the same at the requisite tension by means of suitable springs connected to the levers *c c*. One form of said spring and its connection with the lever *c* is illustrated in Fig. 11 of the drawings, in which *k* denotes a sleeve passing through the table *A* and fastened thereto. The lever *c* is provided with a hub *c'*, by which it is pivoted in the upper end of the sleeve. A shank *c''* extends from the said hub down through the sleeve and has secured to its lower protruding end a collar or nut *n*, by which the hub is retained in the sleeve. A spiral spring *l* surrounds the stem *c''*, and is fastened at opposite ends to the hub and to a shoulder *K'* in the sleeve *K*.

The gages *a' a'*, which engage the front or advancing edge of the paper in process of being fed, are intermittently lifted out of the path of the paper to allow it to pass to the printing-machine after said paper has been adjusted in its position. Said movement of the gages may be effected in any suitable and well-known manner. An exemplification of the same is shown in Fig. 2 of the drawings, and consists of a cam *m*, attached to one of the shafts of the printing-machine, a crank *o* on the shaft from which the gages

a' a' are extended, and a pitman *o'*, transmitting motion from said cam to the crank *o*. The described paper-adjuster I prefer to operate automatically by means of a rock-shaft *C*, actuated by the rock-arms *I*, which by means of the pitman *I* is connected with the transverse shaft *p*, to which the grippers *E* are attached, which grippers carry the paper from the receiving end to the delivery end of the table *A*, and I preferably employ the same rock-shaft *C*, to which are connected the fingers *f f*, which transmit the sheets of paper from the pile to the feed-table. To said rock-shaft *I* attach a crank-arm *D*, the free end of which is connected with the laterally-extended arm of one of the levers *c* by a pitman *P*, as shown in Fig. 1 of the drawings.

In order to allow the described paper-adjuster to remain dormant during a sufficient period to allow the adjusted paper to be caught by the usual and well-known grippers of the impression-cylinder *B*, (not necessary to be here shown,) I allow a limited lost motion to the pitman *P*. This lost motion may be obtained in various ways, two of which I have illustrated in Figs. 7 and 8 of the annexed drawings. In Fig. 7 the lost motion is obtained by a longitudinal slot *s* in the end of the pitman, through which slot the coupling-pin *s'* passes, and thus has a longitudinal play on the pitman.

In Fig. 8 the lost motion is obtained by mounting the crank-arm *D* loosely on the rock-shaft *C* and providing the latter with a transverse groove *t*, into which enters a spring-actuated bolt *t'*, seated in a longitudinal channel in the crank-arm. A pin *t''* projects from the side of the bolt and through a longitudinal slot in the side of the crank-arm to allow the bolt to be withdrawn from the groove *t* when desired to detach the crank-arm from the rock-shaft. The groove *t* allows a limited oscillatory play on the rock-shaft to produce the desired lost motion of the pitman. The detachable connection of the crank-arm *D* to the rock-shaft is preferred over the rigid attachment of the rock-arm shown in Fig. 7 of the drawings, inasmuch as the detachable crank-arm can be attached to either end of the rock-shaft to operate the levers *c c* toward either side of the feed-table, as may be desired.

In order to allow the pitman *P* to be accommodated to the distance between the crank-arm *D* and levers *c c*, I make said pitman adjustable in length in any suitable manner. I prefer, however, to form the said pitman of thin rods lapping over each other and the end of each lapping portion having affixed to it a clamp *u*, embracing the companion rod and provided with a screw *u'*, by which to tighten the clamp on the latter rod, as shown in Fig. 1 of the drawings.

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

1. In combination with a paper-feed table and gages on said table, oscillatory levers at opposite sides of the paper-feeding path, and a paper-carrier moved by said levers diagonally in relation to the line of feed of the paper and carrying the paper to the gages in the process of feeding the same to the printing-machine, as set forth.

2. In combination with a paper-feed table and gages on said table, oscillatory levers at opposite sides of the paper-feeding path, a paper-carrier moved by said levers diagonally in relation to the line of feed of the paper, a rock-arm, and a pitman transmitting motion from said rock-arm to the aforesaid levers, as set forth.

3. In combination with the paper-feed table and gages on said table, oscillatory levers at opposite sides of the paper-feeding path, a tie extending across the table and connected at opposite ends to the aforesaid levers, and a paper receiving and carrying device connected to said tie and extending rearward therefrom, as set forth.

4. In combination with the paper-feed table and gages on said table, oscillatory levers at opposite sides of the paper-feeding path, a bar extending across the table and connected to said levers, clamps on said bar, and a leaf secured to said clamps and extending rearward therefrom to receive and carry to the aforesaid gages the paper in process of being fed to the printing-machine, substantially as set forth and shown.

5. In combination with the paper-feed table and gages on said table, oscillatory levers at opposite sides of the paper-feeding path, a bar extending across the table and connected to said levers and provided with a series of sockets distributed lengthwise thereof and equidistantly apart, and spring-plates mounted on said bar and formed intermediate of their length with lips embracing opposite edges of the bar and provided at opposite ends with lugs registering with the sockets in said bar, and a leaf of paper or analogous material clamped between the bar and inner

ends of the spring-plates, substantially as described and shown.

6. In combination with the feed-table, a stationary bar extending across said table, a paper-aligning gage connected to said bar, oscillatory levers pivoted to the ends of the bar, a bar extended across the table and connected to the levers, clamps connected to the latter bar, and a paper receiving and carrying sheet connected to said clamps and extending rearward therefrom, substantially as described and shown.

7. In combination with the feed-table, a bar extending across said table and rigidly secured thereto, a paper-aligning gage mounted on said bar adjustable longitudinally thereof, levers pivoted to the ends of said bar, a bar extending across the table and connected to said levers, clamps connected to the latter bar adjustable lengthwise thereof, and a paper receiving and carrying leaf connected to said clamps and extending rearward therefrom, substantially as described and shown.

8. In combination with the feed-table A, gages *a* and *a'*, reciprocating grippers E, rock-shaft C, and paper-feeding fingers *ff*, attached to said shaft, the levers *c*, tie *d*, paper receiving and carrying sheet *e*, attached to and extending rearward from said tie, the arm D, attached to said rock-shaft, and the pitman P, connecting said arm with one of the levers *c* and having a limited lost motion, substantially as described and shown.

9. In combination with the gages *a a'*, oscillatory crank-arm D, levers *c c*, and paper receiving and carrying devices *d e*, operated by said levers, and the pitman P, made adjustable in length to accommodate it to the distance between the said crank-arm and levers, as set forth.

Intestimony whereof I have hereunto signed my name this 14th day of March, 1892.

THOMAS A. BRIGGS. [L. S.]

Witnesses:

MARK W. DEWEY,
J. J. LAASS.