

(No Model.)

R. BURNET.
PAPER FEEDING MECHANISM.

No. 463,620.

Patented Nov. 24, 1891.

Fig. 1.

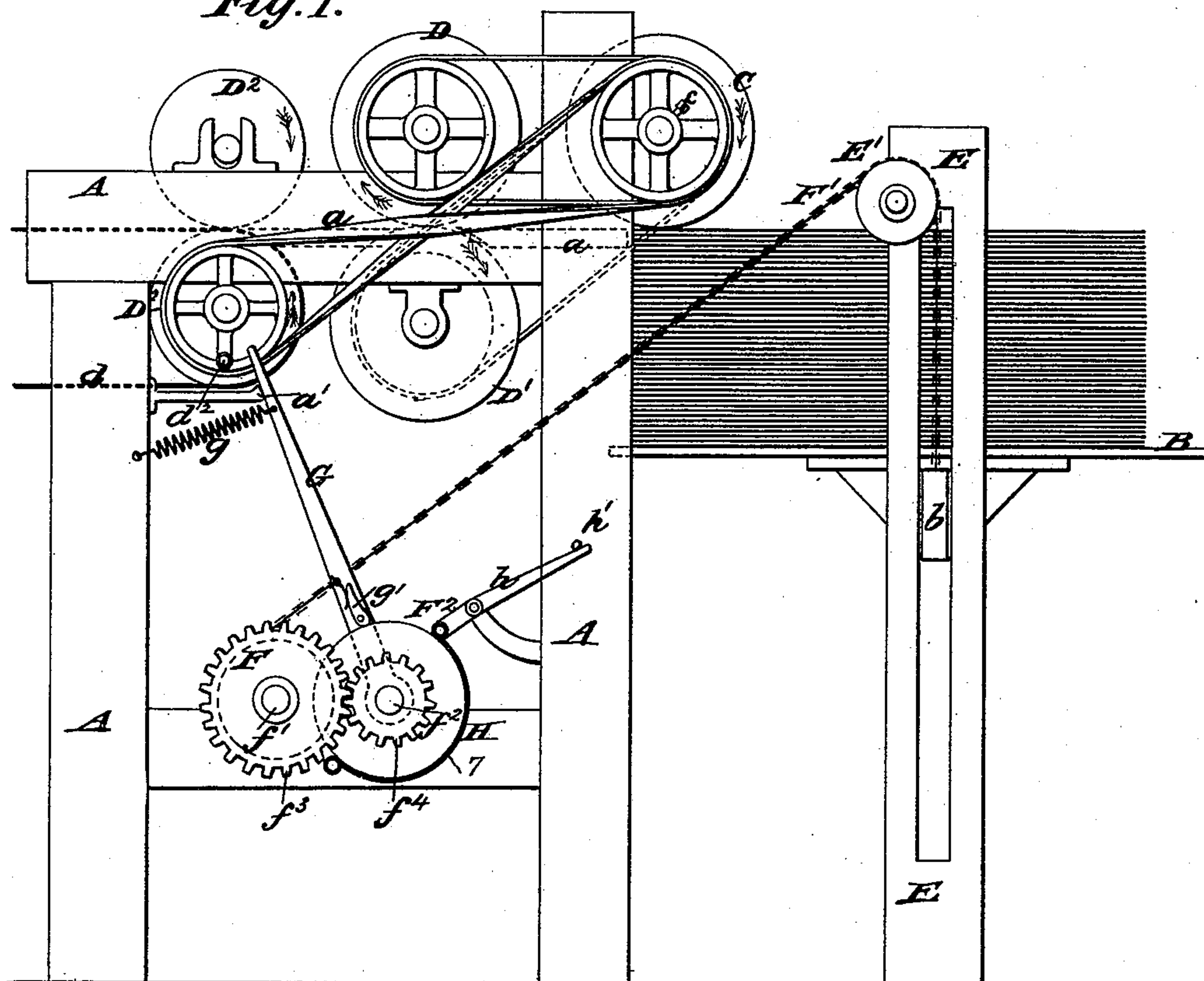
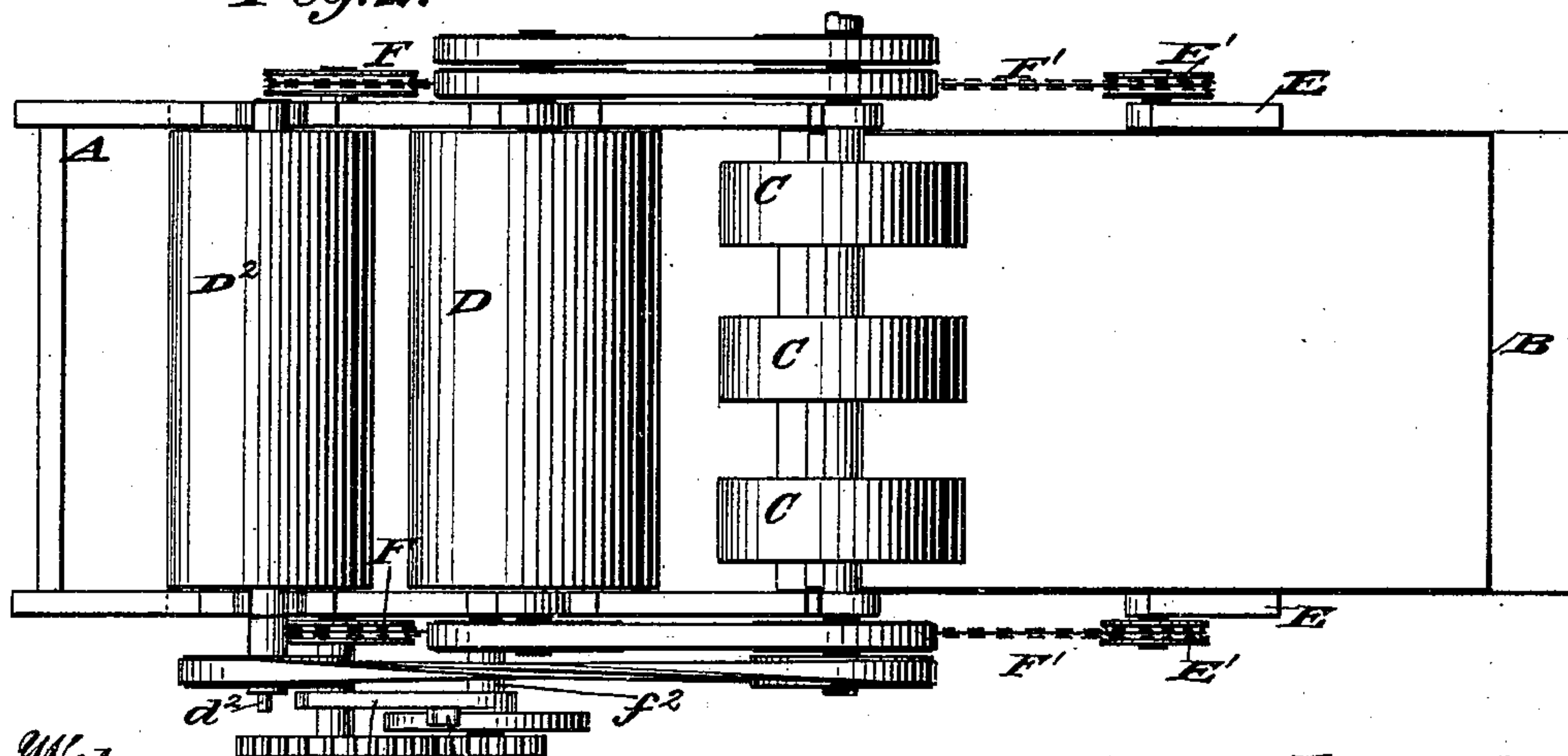


Fig. 2.



Witnesses: G. F. 3 g f²⁴
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his atty

UNITED STATES PATENT OFFICE.

ROBERT BURNET, OF EAST ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO SARAH BURNET, OF SAME PLACE.

PAPER-FEEDING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 463,620, dated November 24, 1891.

Application filed April 30, 1890. Serial No 350,007. (No model.)

To all whom it may concern:

Be it known that I, ROBERT BURNET, a citizen of the United States, and a resident of East Orange, county of Essex, and State of New Jersey, have invented new and useful Improvements in Paper-Feeding Mechanism, of which the following description, taken in connection with the drawings herewith accompanying, is a specification.

My invention relates to that class of machines or mechanism adapted for automatically feeding through the medium of suitable feeding-rolls sheets of paper or similar material arranged in quantities upon a suitable support to a machine for either pressing, ruling, printing, or otherwise operating upon the same; and it consists, first, in means for automatically raising the paper-supporting table as the paper is fed therefrom by the frictional feeding roll or rollers in order to keep the upper or each succeeding sheet of paper adjacent to the feeding roll or rollers in position to be fed forward by the latter, and, secondly, in the means for regulating the number of sheets of paper to be fed forward by the feeding-rolls in a manner to prevent two or more being fed forward together or at the same time.

The object of my invention is to provide a mechanism of cheap and simple construction and positive in its operations, whereby a quantity of sheets of paper, located one above the other, may be placed upon a suitable table or support and be automatically elevated thereby into position adjacent to suitable feeding-rolls and be fed therefrom by the latter, one sheet at a time, to a machine for ruling, printing, or otherwise operating upon the same with greater rapidity and therefore in increased numbers than accomplished by mechanism of a similar character, as heretofore constructed.

Referring to the drawings, Figure 1 represents a side elevation of my improved machine; Fig. 2, a plan view of the same.

To explain in detail, referring to Figs. 1 and 2, A represents the supporting-frame by which the several parts forming the machine are supported, and B a table or support upon which the paper is placed, as shown in Fig. 1, adapted to be automatically raised or ele-

vated, by means and in a manner as will hereinafter be described, as each sheet is fed therefrom by a frictional feeding roll or rollers C to raise or bring the succeeding sheet in position to be engaged by the latter, which is provided with a frictional surface of emery, rubber, or other suitable material, as desired. In the instance shown I have provided several frictional feeding-rolls C of reduced width in lieu of one of greater width, as heretofore employed, and which are adjustably secured laterally on their rotating shaft by means of set-screws c, (more clearly shown in Fig. 1,) in order to produce a greater or less amount of engaging friction-surface, according to the varied widths of paper. The paper, when fed forward by the frictional rolls C, passes over an intermediate surface a, by which it is guided between two separator-rolls D and D', and from thence between the usual feeding-rolls D² D². Now, in order to prevent more than one sheet of paper being drawn from the pile on the table or support B and fed forward by said feeding-rolls to the printing, ruling, or other machine, I provide the said immediately-located rolls D and D', having their adjacent faces rotated in opposite directions, as indicated by arrows in the drawings, the upper one D rotating in a forward direction or in the same direction as the frictional roll C and feeding-rolls D² D² and the lower roll D' in the opposite direction. The feeding-rolls D² must be placed so close to the separator-rolls as to grasp the forward end of each sheet before the latter end is released by the separator-rolls. With this arrangement the feed-rolls D² are not merely means for transporting the sheets to a ruling or printing machine, but assist the roll D in forwarding the top sheet in case two sheets are advanced, and the feeding-rolls thus co-operate with the separator-rolls in delivering the sheets singly, the function of said rolls, operating as described, being as follows: In case two sheets of paper are carried forward by the frictional rolls C, caused by reason of their sticking together or otherwise, the lower roll D' engages with the bottom sheet and forces it back, while the upper roll D forces the upper sheet forward (a slight space being left between the rolls to admit of the easy passage of a single sheet of

paper) until engaged by the feeding-rolls D^2 D^2 , by which it is fed forward on a belt or apron d to the ruling, printing, or other machine.

5 The feeding mechanism consisting of the several operating-rolls, as described, which are journaled in suitable bearings supported by the frame A, may be operated either by hand or power, and are connected by belting
10 suitably arranged, as shown in the drawings, to be rotated or operated in a manner as described.

Referring to Figs. 1 and 2, the paper supporting and feeding table B is, in the instance
15 shown, supported laterally between two posts or stanchions E E, forming a part of the frame A, and guided when vertically operated by means of projections b b , which extend and operate in grooves in the posts or stanchions
20 E E, and is adapted to be raised or elevated for the purpose, as hereinbefore set forth, by means of chains or other suitable flexible connections F' F' , operating over pulleys E' E' , supported on said posts or stanchions E E
25 and connected at one end with each side of said table or support B and at their opposite end with a drum or pulley F F , located one at each side of the frame A on a shaft f' , journaled on the frame A, and said pulleys
30 F F are adapted to be rotated to wind up the chain or flexible connection F' in order to elevate the table or support B through the medium of a shaft f^2 , connecting with said pulley-supporting shaft f' by means of
35 gearing f^3 and f^4 , and operated by means of a friction device consisting of a lever G, journaled at one end on said shaft f^2 and at its opposite end held in a normal yielding position against an arm or bracket a' by means
40 of a spring g in a position to be engaged by a pin or projection d^2 , located on and extending from one of the feeding-rolls D^2 , and when engaged by the latter is carried forward slightly, causing a friction-pawl g' , carried thereby, to engage with the outer periphery of a disk F^2 , secured on said shaft f^2 , and carry the same forward slightly until released by its operating pin or projection d^2 , said pawl g' being held in engagement with
50 said disk F by means of a spring, as shown. By this mode of arrangement and operation of the several parts it will be readily understood that at each revolution of the feeding-rolls D^2 and a sheet of paper has been fed
55 through the same the pin or projection d^2 on one of said rolls D^2 engages the end of the lever G and carries the same forward slightly to elevate the table or support B through the medium of the connecting mechanism to feed
60 the paper supported thereon in position to be engaged and carried forward by the frictional rolls C, the degree of elevation at which the table or support B is moved at each rotation of the roll D^2 being regulated by the length of the lever G, which, being longer or shorter,
65 determines the length of engagement therewith by the pin or projection d^2 , thereby

regulating its throw and the movement of the table or support B by reason of the connecting mechanism, as will appear obvious. 70

In order to hold the table or support B in its raised position when elevated by the friction device and connecting mechanism, as described, and after the lever G has been released by the pin d^2 , I provide a friction-brake 75 H, adapted to engage the disk F, and consisting, in the instance shown, of a strap 7, or other suitable material, connected at one end with the frame A or part thereof and at its opposite end attached to the end of a pivoted 80 lever h , which latter at its opposite end is adapted to be adjustably held in position, in the instance shown, by means of projections h' , with which it is adapted to engage. When it is desired to lower the table or support B 85 after the paper has been fed therefrom, the friction-brake H is released from engagement with said disk F by means of the lever h , thereby allowing the said table or support B to lower by reason of its own weight. It is 90 also obvious to those skilled in the art that the friction device, as shown and described, may be modified in its form and construction somewhat without departing from the spirit of my invention. 95

I am aware that machines for canceling stamps upon letters have been provided with a separating device by which one of the letters is forwarded to an automatic stamp, and I do not therefore claim a separator broadly. 100

I hereby disclaim any apparatus in which the sheets are not piled horizontally and fed vertically at right angles to a path between horizontal separating-rolls or any machine in which the pile of sheets is not continuously 105 acted upon by the constant contact of a friction-roller.

Having thus set forth my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is— 110

1. A paper-feeding machine comprising a feeding-table movable vertically for pressing the pile of sheets upward, a friction-roll rotated continuously in contact with the sheets to produce a constant forward motion of the 115 same, a pair of independent separator-rolls arranged one above the other with their adjacent faces rotated in opposite directions in contiguity to the friction-roll, and feeding mechanism connected with the friction-roll to 120 elevate the feeding-table, as and for the purpose set forth.

2. In a paper-feeding mechanism, the combination, with the feeding-rolls, of a paper-supporting table adapted to be automatically 125 elevated by means of a suitable gearing through the medium of a chain or other flexible connection, a friction device operated by one of said feeding-rolls for operating said gearing, and a friction-brake for holding said 130 paper-supporting table in position when elevated by its operating mechanism, substantially as described, and for the purpose set forth.

3. A paper-feeding machine comprising a feeding-table movable vertically for pressing the pile of sheets upward, a friction-roll rotated continuously in contact with the sheets to produce a constant forward motion of the same, a pair of independent separator-rolls arranged one above the other with their adjacent faces rotated in opposite directions in contiguity to the friction-roll, a pair of feeding-rolls to receive the sheets from the separator-rolls, and feeding mechanism connected with the friction-roll to elevate the feeding-table, as and for the purpose set forth.

4. In a paper-feeding mechanism, the com-

ination, with the feeding-rolls, of a paper-supporting table and means for automatically elevating the same, consisting of suitable gearing, a friction device operated by one of said feeding-rolls to operate said gearing, suitable means connecting said gearing and paper-supporting table, and an adjustable friction-brake, substantially as described, and for the purpose set forth.

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Witnesses:

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