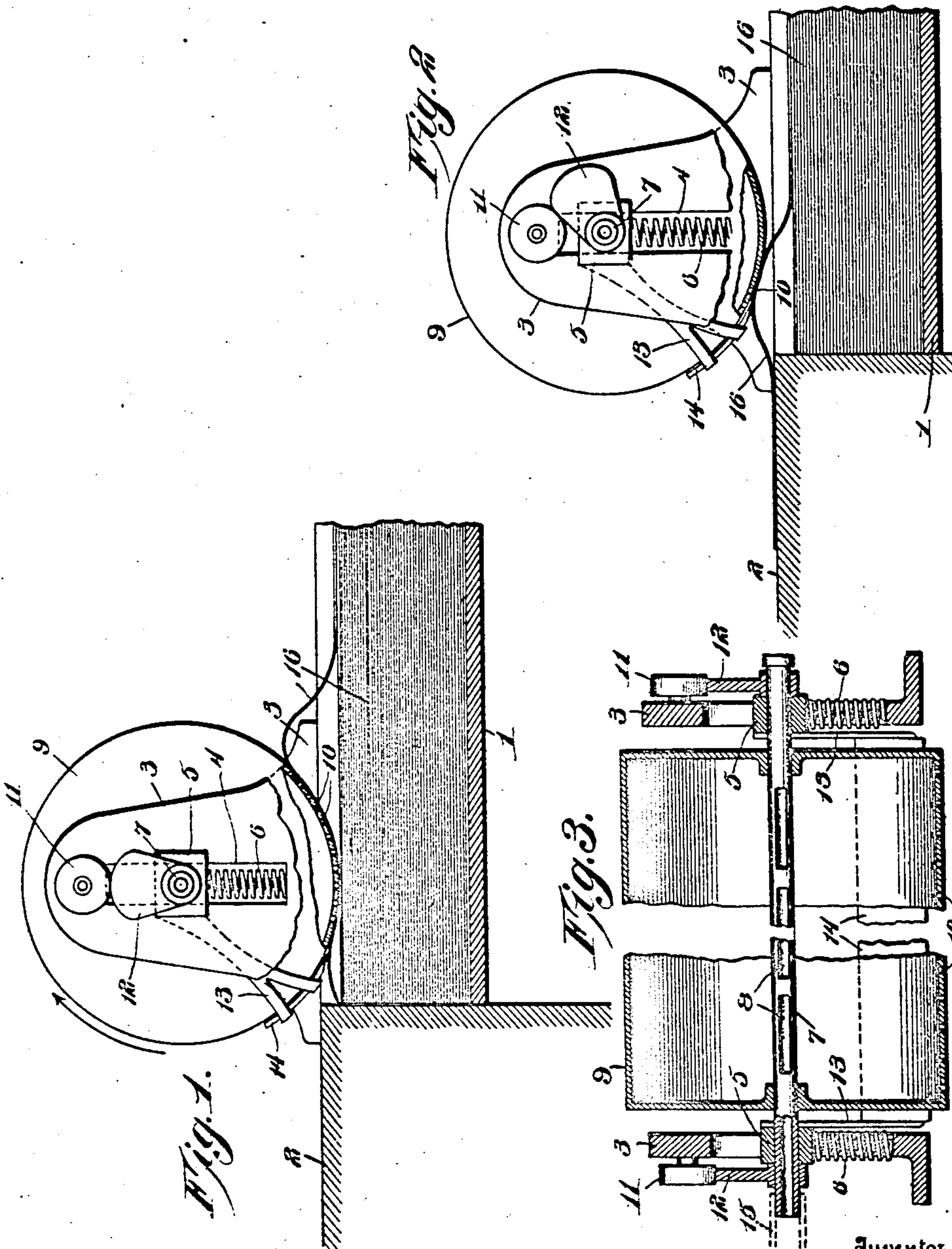


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PATENTED JUNE 26, 1906.

M. BAUMGARTNER.
PAPER FEEDING APPARATUS.
APPLICATION FILED AUG. 7, 1905.



Witnesses

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MAX BAUMGARTNER, OF CHICAGO, ILLINOIS.

PAPER-FEEDING APPARATUS.

No. 824,401.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MAX BAUMGARTNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois have invented certain new and useful Improvements in Paper-Feeding Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to apparatus for feeding paper sheets into cylinder printing-presses, paper-folding machines, &c.; and its object is to provide pneumatic means of this character which can be used for conveying sheets of paper of any size, one at a time, from a stack and depositing them upon a table or other structure provided for that purpose.

A still further object is to provide mechanism of this character which will positively separate the top sheet from the adjoining sheets of the stack, so as to prevent the displacement of any but the proper sheet during the feeding operation.

With the above and other objects in view the invention consists of a feeding-drum having series of apertures in its face and said drum being mounted upon a tubular shaft adapted to be connected to a suitable air-suction device. The shaft of the drum is resiliently supported within suitable guides, and mechanism is provided whereby the drum is automatically depressed or moved downward whenever the apertures therein assume a position adjacent the stack of paper to be fed.

The invention also consists of certain other novel features of construction and combination of parts which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, I have shown the preferred form of my invention.

In said drawings, Figure 1 is a side elevation of the feeding apparatus, the cylinder and one of the standards being partly broken away and said cylinder being shown in one of its positions during the feeding operation. Fig. 2 is a similar view showing the positions assumed by the parts just prior to the completion of the feeding operation, and Fig. 3 is a vertical transverse section through the feeding apparatus.

Referring to the figures by numerals of reference, 1 is a stack-supporting table or follower adapted to be raised automatically in

any suitable manner as the paper sheets are successively removed therefrom, and 2 is a delivery-table. Standards 3 are mounted upon the table at opposite sides of the follower 1 and have slots 4 therein, in which are slidably mounted boxes 5. These boxes are supported by springs 6, located within the slots, and rotatably mounted within the boxes is a tubular shaft 7 having one or more apertures 8 therein. Shaft 7 extends through and is secured to the heads of a cylindrical drum 9, which is entirely closed except where series of apertures 10 are formed in the curved face thereof. Each standard has a roller 11 mounted thereon adjacent the upper end of the slot 4, and these rollers are adapted to be simultaneously contacted by cams 12, secured to the ends of shaft 7. Arms 13 extend downward from the boxes 5 and are connected at their ends by a blade 14, which lies close to the periphery of the drum and is adapted to move upward or downward with the boxes 5. The shaft 7 is adapted to be connected to any suitable air-exhausting mechanism by means of a tube 15, and it is therefore obvious that the air will be sucked through the series of apertures 10 and into the drum and thence through the apertures 8 to the shaft 7 and tube 15. As the drum rotates in the direction of the arrow in Fig. 1 the cams 12, which rotate therewith, come into contact with the rollers 11 just prior to the time when apertures 10 arrive in position above the stack of paper 16. As these cams continue to rotate they will force the boxes 5 downward and compress springs 6 and will therefore cause the apertured portion of the drum to move downward into close proximity to the upper sheet of the stack 16. The suction will cause the said sheet to be drawn upward against the apertured portion of the drum, and as said drum continues to rotate the free end of the upper sheet of paper will come into contact with end of table 2 and will buckle and will therefore become positively separated from the next succeeding sheet. During the further rotation of the drum the sheet of paper will be carried upward into contact with blade 14, and the end of said sheet will be lifted onto the table 2. The blade 14 serves to close the apertures 10 as they arrive in position thereover, and the sheet is therefore detached from the drum and slid forward onto the table 2, where it can be grasped by any suitable mechanism provided for that purpose. The operation of

lifting the sheet upon the table is of course facilitated by reason of the fact that the drum 9 is raised by the springs 6 as the sheet of paper is carried forward thereby.

5 It will be seen that this feeding apparatus is a very simple and inexpensive construction and does not require the use of any intricate mechanism for regulating the suction or for
10 detaching the paper from the drum. The drum can be of any size relative to the sheet of paper fed thereby, and the entire apparatus can be easily attached to the various forms of machines now in use. The fact that
15 the apparatus occupies but a comparatively small space renders the same particularly desirable.

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

20 1. A feeding apparatus of the character described comprising a rotatable suction device, a resilient support therefor, and means for moving the device vertically during a portion of the rotation thereof to tension the
25 support.

2. The combination with a rotatable suction device, and means for reciprocating the same vertically during the rotation thereof; of
30 a paper-detaching blade adjacent and movable vertically with the suction device.

3. An apparatus of the character described comprising a rotatable suction device, means for automatically reciprocating said device
35 vertically during the rotation thereof, and a vertically-movable separating-blade adjacent the suction device.

4. In an apparatus of the character described the combination with a resiliently-supported drum having an apertured portion, said drum constituting a suction device;
40 of means rotatable with the drum for imparting vertical movement thereto in one direction during its rotation and tensioning the support.

45 5. In an apparatus of the character described the combination with a resiliently-supported drum having an apertured portion, said drum constituting a suction device;

of means rotatable with the drum for imparting vertical movement thereto during its rotation, and a paper-detaching device adjacent and movable vertically with the drum, said device constituting a closure for the apertures. 50

6. The combination with an apertured rotatable drum; of a tubular shaft therefor, resiliently-supported bearings for the shaft, a fixed device and means rotatable with the shaft for contacting with said device and automatically moving said shaft vertically during its rotation. 55 60

7. The combination with an apertured rotatable drum, a tubular shaft therefor and resiliently-supported bearings for the shaft, of a fixed device, means rotatable with the shaft for contacting with said device and automatically moving said shaft vertically during the rotation thereof, and a paper-detaching device connected to, and movable vertically with, the bearings. 65 70

8. The combination with standards; of a tubular shaft resiliently supported within the standards, an apertured drum rotatable with the shaft, said shaft communicating with the drum through an aperture therein, an eccentric rotatable with the shaft, and means upon one of the standards adapted to be contacted by the eccentric during its rotation. 75

9. The combination with standards; of a tubular shaft resiliently supported within the standards, an apertured drum rotatable with the shaft, said shaft communicating with the drum through an aperture therein, an eccentric rotatable with the shaft, means upon one of the standards adapted to be contacted by the eccentric during its rotation, and a paper-detaching device connected to, and movable vertically with, the shaft and drum. 80 85

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 90

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Witnesses:

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