No. 820,804. PATENTED MAY 15, 1906.

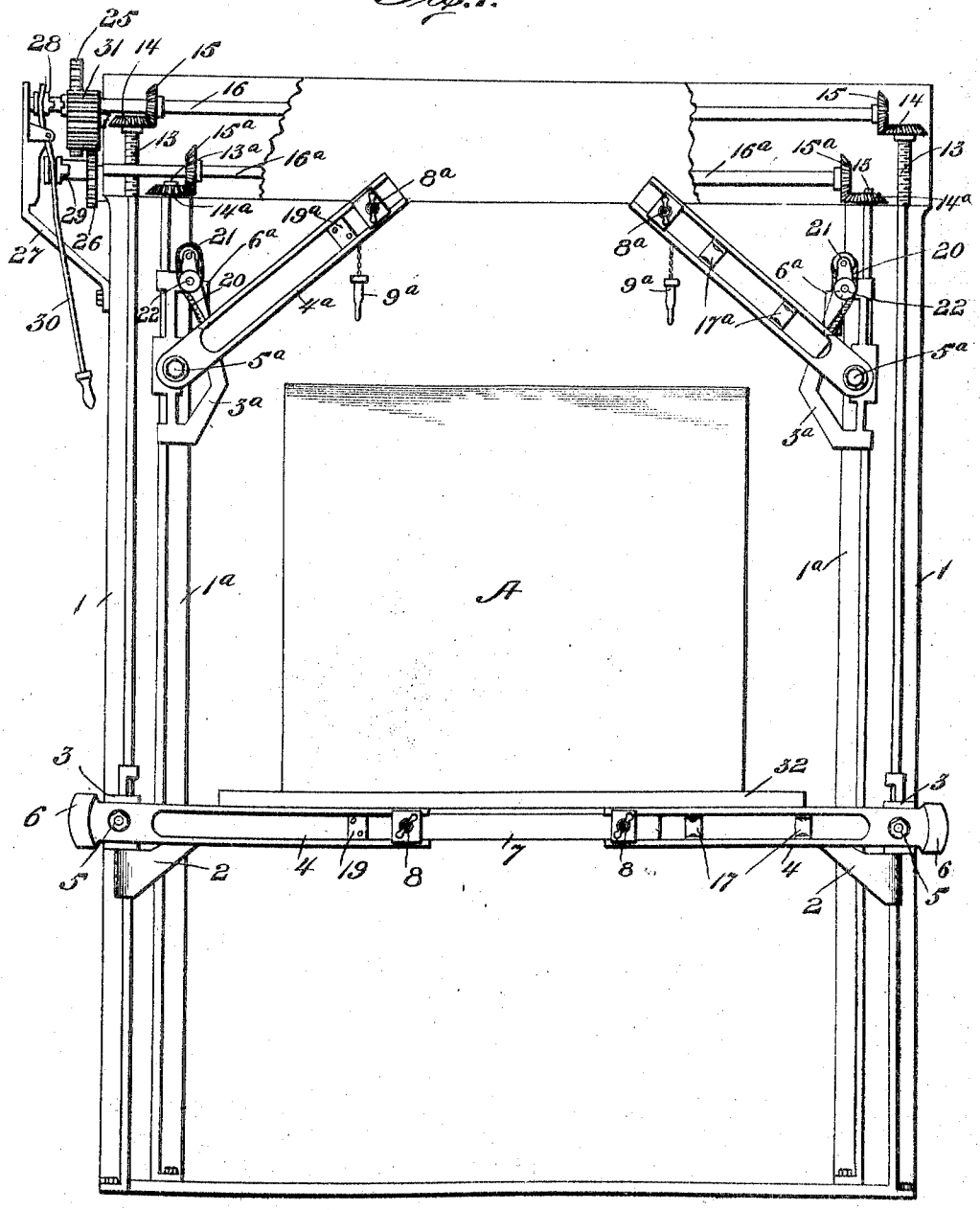
C. J. LUCY.

PAPER FEEDING DEVICE.

APPLICATION FILED DEC. 29, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

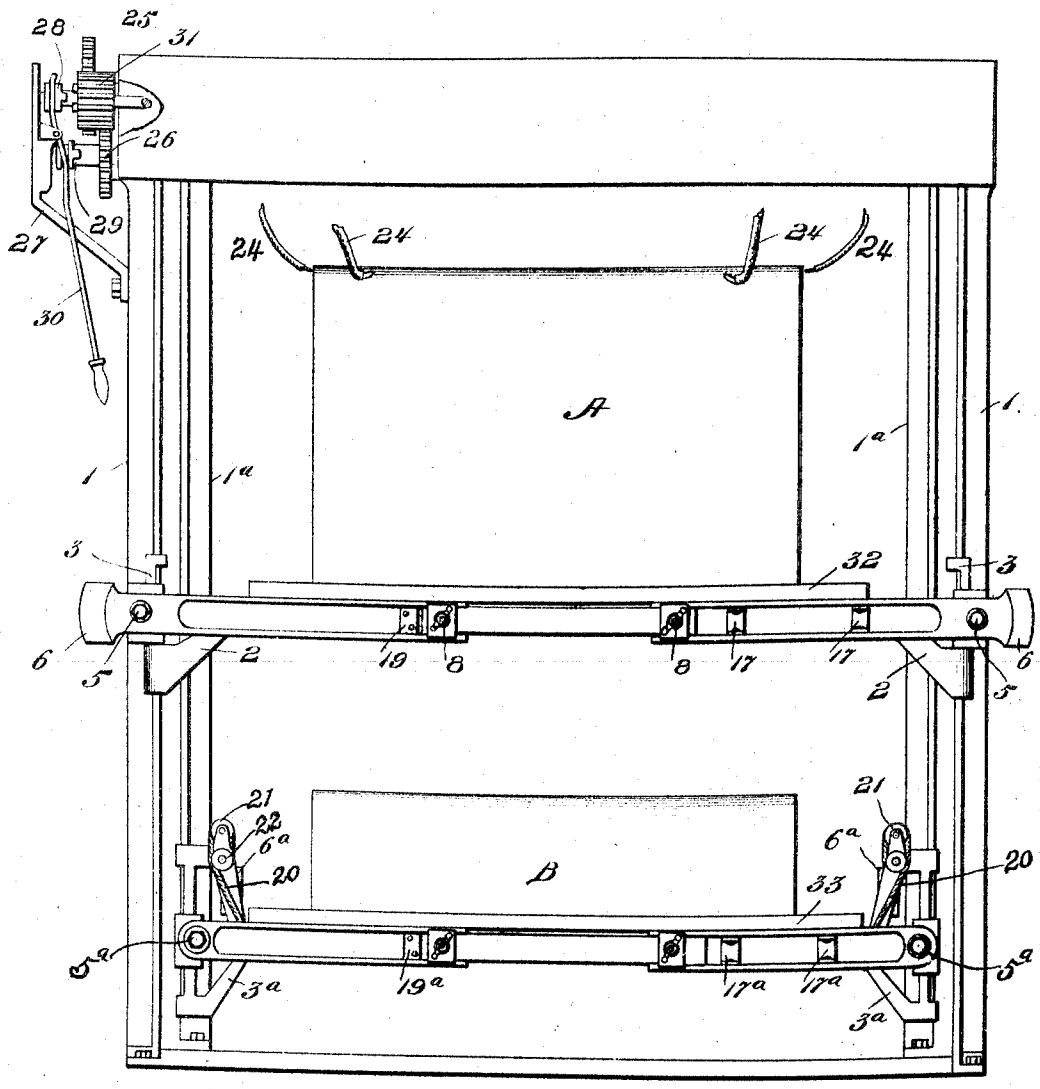


Fig. 2.

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3 SHEETS—SHEET 3.

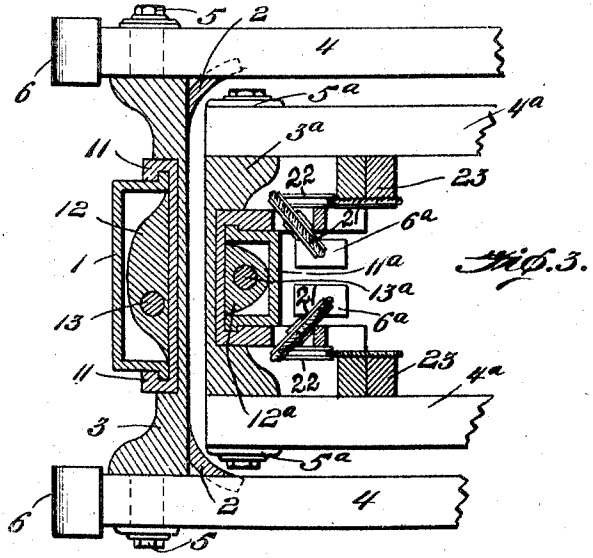


Fig. 3.

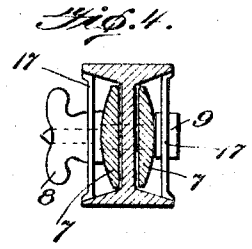


Fig. 4.

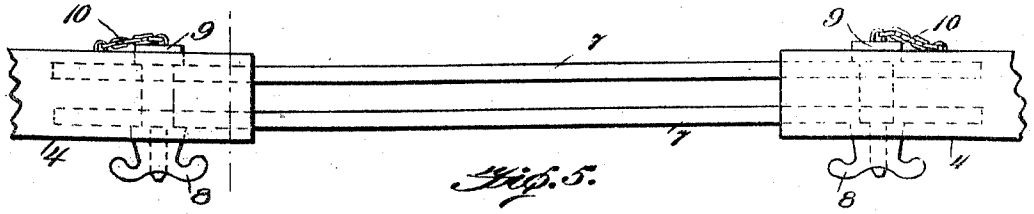


Fig. 5.

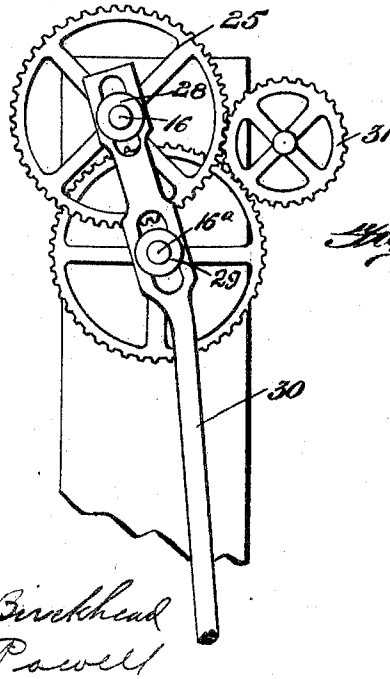


Fig. 6.

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UNITED STATES PATENT OFFICE.

CORNELIUS J. LUCY, OF WASHINGTON, DISTRICT OF COLUMBIA.

PAPER-FEEDING DEVICE.

No. 820,804. Specification of Letters Patent. Patented May 15, 1906.

Application filed December 29, 1905. Serial No. 293,798.

To all whom it may concern:

Be it known that I, CORNELIUS J. LUCY, a citizen of the United States, and a resident of Washington, District of Columbia, have invented certain new and useful Improvements in Paper-Feeding Devices, of which the following is a specification.

My invention relates to improvements in paper-feeding devices for printing-presses and other machines, wherein successive sheets of paper or similar flexible material are fed to the press or other machine for printing, ornamenting, or other action upon the surface of said sheets.

In printing-presses and other like machines a considerable amount of time is lost in renewing the supply of paper for the automatic feed to such press, either when furnishing a fresh supply in stacks or pile or when transferring the pile of sheets previously acted upon by the press to the support for such pile for printing upon the other sides of said sheets, owing to the fact that a single support has been employed, moved automatically upward to bring the top of the pile in position for action thereupon by the air-blast, mechanical, or other feed, thereby necessitating the stoppage of the feed for a considerable period, and usually the press, while such transfer or renewal is taking place.

My object is to provide an improved mechanism for feeding the pile of sheets to the automatic paper-feeding device of the printing-press whereby the operation of such printing-press may be practically continuous and the least delay in the action of the press is entailed.

With this object in view my invention consists in the novel construction of paper-feeding device, as hereinafter described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the drawings I have shown my device as applied to a common type of printing-press; but it is to be understood that it is not limited to such application, as it may be applied not only to various forms of printing-presses in which a pile of paper is automatically moved by suitable mechanism toward the automatic feed for removing in succession the top sheet of said pile and feeding it to the feed table or cylinder of the printing-press, but to other machines in which successive sheets of paper or like material are fed for action thereupon as it passes through said machine, and in the specification and claims where I use the term "paper-feed" it is to be understood that I mean to include a feed either for paper or other flexible material, and where the term "printing-press" is used for brevity, though my invention is especially applicable thereto, I mean to include other machines wherein successive sheets of material are fed from the pile to such machines for the desired action thereupon.

In the drawings, Figure 1 is an end elevation of so much of a printing-press as is necessary to illustrate the application of my invention thereto with certain parts broken away. Fig. 2 is a similar view showing different positions of my improved paper supporting and feeding device. Fig. 3 is a transverse sectional view in detail with certain parts in elevation. Fig. 4 is a detail view in transverse section. Fig. 5 is a detail plan view, and Fig. 6 is a side elevation in detail.

Referring now to the drawings, in which the same or similar reference characters relate to the same or corresponding parts in all the views, the numeral 1 indicates the ordinary vertical frames of a printing-press upon which are slidably mounted brackets 3, to each of which is fulcrumed at 5 two supporting paper-pile members 4 in separable sections and preferably made of ordinary structural shape, as an I-beam. Extension-brackets 2 on the brackets 3 serve as additional supports to the beam-sections 4, thereby giving sufficient rigidity to the support for the pile of paper. Seated in and secured to each of the brackets 3 is a plate 11, (see Fig. 3,) having flanges overlapping the flanges of the frames 1. Each of the plates 11 or the brackets is provided with a lug 12, secured thereto or formed integral therewith, perforated with a screw-threaded hole engaging the feed-screws 13, adapted to be operated by a driving-shaft 16 through the medium of bevel-gears 14 and 15. These feed-screws, bevel-gears, &c., are of the ordinary type and common in this class of machines and operate in the usual way to traverse the supporting members on the frames, the rotation thereof in one direction gradually traversing the bracket and its attached supporting-beams 4 upwardly into position when the top sheet of the pile may be blown or drawn onto the feed-table of the press, while rotation in the opposite direction traverses said brackets in the reverse direction. The shaft 16 is operated by a spur 25, driven from the pinion 31, operated by any suitable operating element

of the machine. This spur-gear is loosely mounted on said shaft and is adapted to be clutched thereto at will through the medium of an ordinary clutch 28, slidable on the shaft and moved by a lever 30, fulcrumed upon the bracket 27.

The two beams or bar-sections 4 on opposite sides of the press are slidably connected by bars or rods 7, located on opposite sides of the webs of the beams, the ends of which bars are detachably locked to the beams by any suitable detachable means, such as pins 9, passing through the holes in the bars and the webs of the beams and locked thereto by fly-nuts 8 on the opposite side thereof, the bolts 9 being preferably attached to the sides of the beams 4 by chains 10. Each of the beams is preferably provided on opposite sides with guide-plates 17, adapted to confine the bars 7 to the beams when the said bars are released. The outer ends of each of the beams is weighted by a suitable weighted portion, as 6, so that when two opposite supporting-beams are released the said weights on one side of the pivotal points 5 will overbalance the inner ends of said supporting-beams and cause them to swing upwardly to vertical position for the purpose hereinafter described. One of the beams may be provided with stop-plates 19, against which the locking-bars are adapted to abut when the same are brought into position for locking the two opposite beams together.

The pile A of sheets of paper preferably rests upon a removable board 32, supported upon the beams 4.

In the usual operation of a printing-press of this character when the pile A of paper has been raised to the automatic blast-feed the sheets of paper are successively separated therefrom and then fed to the press, and when the pile is exhausted the board 32 is lowered and the printed pile transferred thereto or to a similar board at the delivery end of the press and carried to the rear and placed on the supporting structure or beam previously lowered to its lowermost position. It is during this operation that considerable time is lost. I overcome this delay by an additional supporting member or beam structure which is adapted to alternately operate with its mate, and in the drawings I have shown a convenient form of accomplishing this object, wherein the supporting beams or bars are made separable, as described, and a similarly-constructed beam-support to that above described is used.

The numeral 3^a indicates brackets slidably mounted upon supplemental vertical frames 1^a, located inside of the main frames 1. To these brackets are attached guiding-plates 11^a, having grooves or overlapping flanges engaging flanges on the frames 1^a and provided with lugs 12^a, through which the feed-screws 13^a pass, said screws being rotated by the shaft 16^a through the medium of bevel-gears 14^a and 15^a, on which shaft is loosely mounted a spur-gear 26, engaging the driving-pinion 31, adapted to be clutched to the shaft by a clutch 29, operated by the lever 30. The supporting-beam sections 4^a are similarly constructed to the sections 4 and separably connected in the same manner by parts before described, which are the same in both supports and designated by a superscript "a" added to the reference-numeral indicating the corresponding part, and hence need not be further described in detail.

The means for overbalancing and swinging the beam-sections upwardly are necessarily different, since the projecting weight 6 could not be used in this form, as the brackets 3^a pass inside of the two beams 4, and to provide this function I mount upon the brackets 3^a guide-pulleys or wheels 21 and 22, around which pass rope or cords 20, an end of which supports the weights 6^a and the other end of which is attached at 23 to the beam-sections 4^a, so that when the said sections are released, as shown in Fig. 1, the said weights will swing the sections upwardly in vertical direction, thereby clearing the pile of paper A and allowing the brackets to be rapidly returned to the lower position, in which they may be again connected, as shown in Fig. 2, while the pile A may be fed upwardly into operating position for action thereupon of the automatic blast-feed. By this construction it will be observed that while the sheets are being separated from the upper pile A of paper, usually by an air-blast separator and feed, the discharge-nozzles 24 of which are indicated in Fig. 2, and the said pile fed upwardly by the mechanism hereinbefore described the lower pile B of paper may be replenished, so as to be ready for upward feed as soon as the other pile is exhausted, and thus a considerable saving of time is effected in the operation of the feeding device.

While I have shown a convenient and preferred form of my invention applied to a common type of printing-press, it is to be understood that various changes may be made in the details thereof without departing from the spirit and scope of my invention as defined in the claims.

I claim as my invention—

1. In a paper-feeding device, the combination of two sets of frames having slideways thereon, one inside of the other, slides mounted on said slideways, pile-supporting members movably supported on said slides, and mechanism for alternately traversing said slides on the slideways, substantially as described.

2. In a paper-feeding device, the combination with the frame of the machine, of a pile-supporting member comprising separable sections, slides movably mounted on the

frame of the machine and to which the separate sections of said pile-supporting member are movably connected, means for traversing said slides on the frame of the machine, and means for detachably connecting the sections together, substantially as described.

3. In a paper-feeding device, the combination with the frame of the machine, of two pile-supporting members each comprising separable sections, means for locking said sections together to support the pile of paper, and mechanism for alternately traversing said members on the frame of the machine to bring the pile of paper supported thereby to position for feeding sheets therefrom, substantially as described.

4. In a paper-feeding device, the combination with the frame of the machine, of a pile-supporting member, comprising separable sections, slides movably mounted on the frame of the machine and to which separate sections of said pile-supporting member are pivotally connected, means for traversing said slides on the frame of the machine, and detachable means for connecting the two sections together, substantially as described.

5. In a paper-feeding device, the combination with the frame of the machine, of a pile-supporting member, comprising separable sections, slides movably mounted on the frame of the machine and to which separate sections of said pile-supporting member are pivotally connected, means for traversing said slides on the frame of the machine, detachable means for connecting the two sections together, and means for swinging the separate sections on their pivots when disconnected, substantially as described.

6. In a paper-feeding device, the combination with the frame of the machine, of two pile-supporting members each comprising separable sections, means for detachably connecting the same together for supporting the pile of paper thereon, slides to which the supporting members are pivotally connected movably mounted upon the frame of the machine, mechanism for traversing said slides to bring the said pile-supporting members into position for feeding the sheets of papers from said pile, and means for swinging the separate sections of each of the pile-supporting members on their pivots when disconnected, substantially as described.

7. In a paper-feeding device, the combination with the frame of the machine, of a pile-supporting member comprising two separable sections, slides traversable upon said frame to which said sections are pivotally connected, means for traversing said slides, supplementary frames, a second pile-supporting member comprising separable sections, slides mounted on said frame to which the separate sections of said second member are pivotally connected, means for traversing said second supporting member, detachable means connecting the separate sections of each of said members, and means for swinging the separate sections of said member on their pivots, when disconnected, substantially as described.

8. In a paper-feeding device, the combination with the frame of a machine, of a pile-supporting member comprising two sections, locking-bars detachably connecting said members, slides traversable upon the frame of the machine to which the separate sections of said member are pivotally connected, means for traversing said slides on the frame of the machine, supplementary frames inside the main frame of the machine, a second pile-supporting member comprising two sections, slides traversable upon said supplementary frames to which the said sections are pivotally connected, locking-bars detachably connecting the two sections together, means for traversing said slides upon said supplementary frames, and means for swinging the separate sections of each of the supporting members on their pivots when disconnected, substantially as described.

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

CORNELIUS J. LUCY.

Witnesses:
R. T. FRAZIER,
T. W. BUCKHEAD.