

No. 750,453.

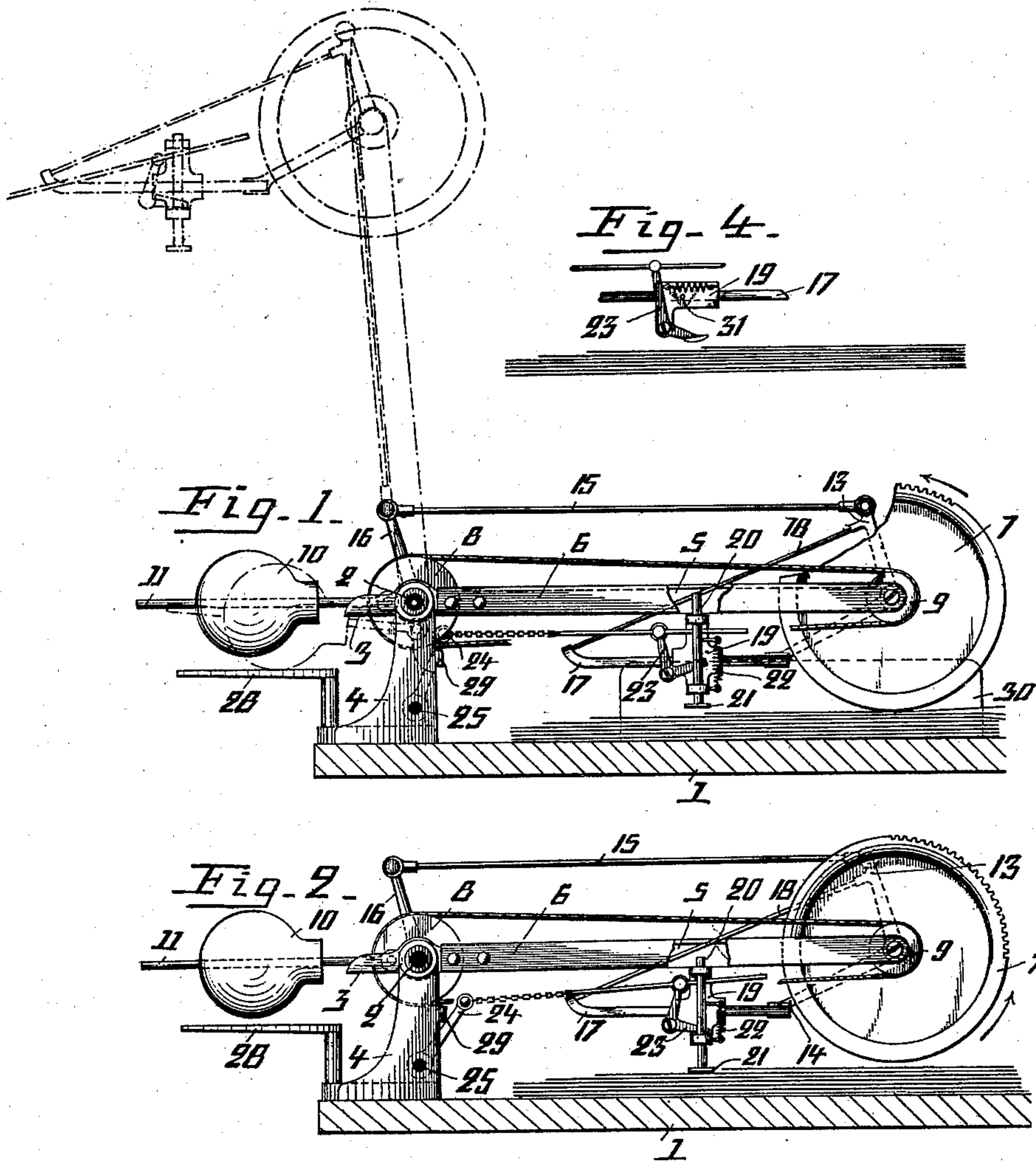
PATENTED JAN. 26, 1904.

E. J. HALLBERG.
PAPER FEEDING MACHINE.

APPLICATION FILED JULY 8, 1901.

NO MODEL.

3 SHEETS—SHEET 1.



Attest.
Edw. L. Reed.
L. B. Middleton

Inventor:
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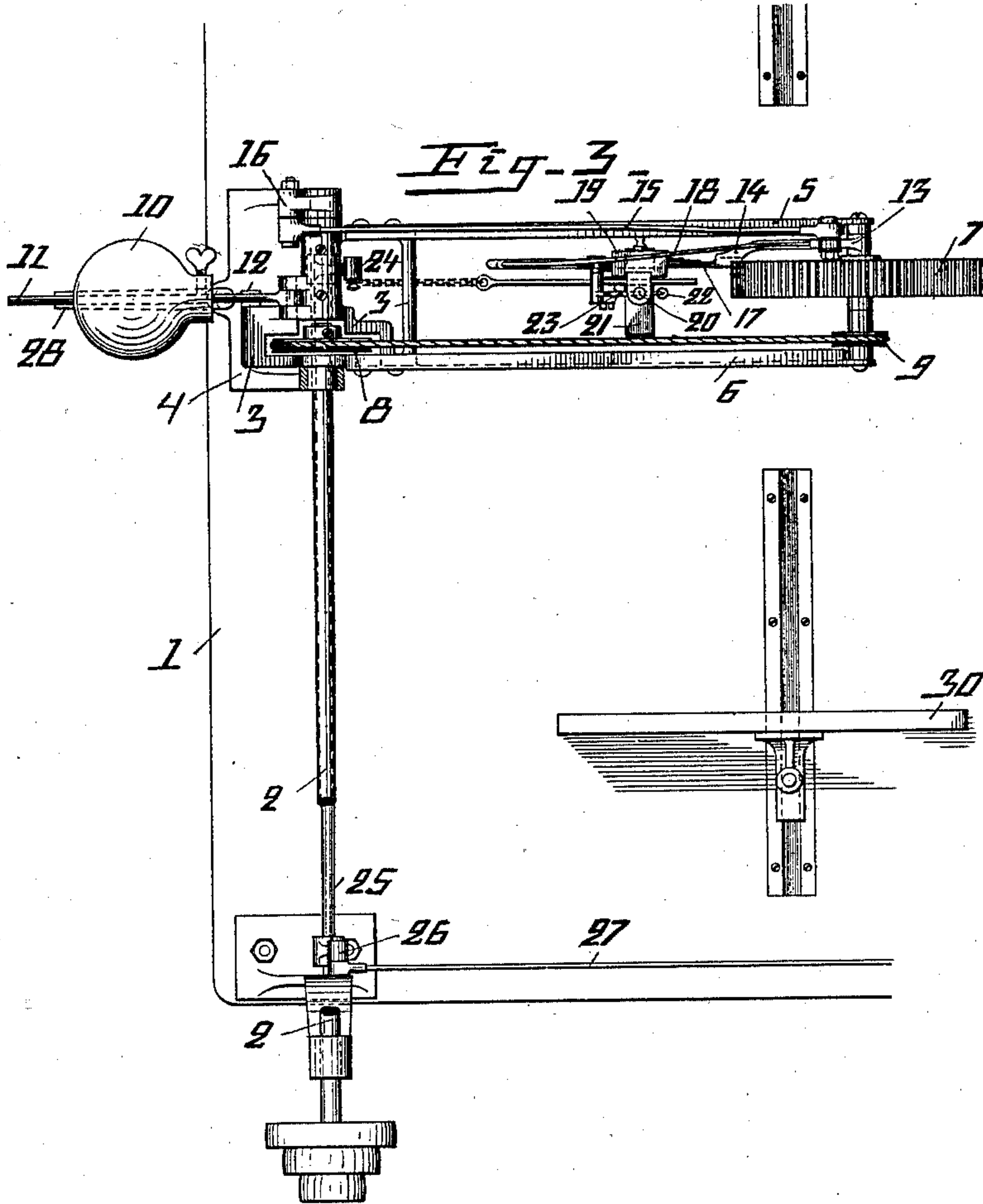
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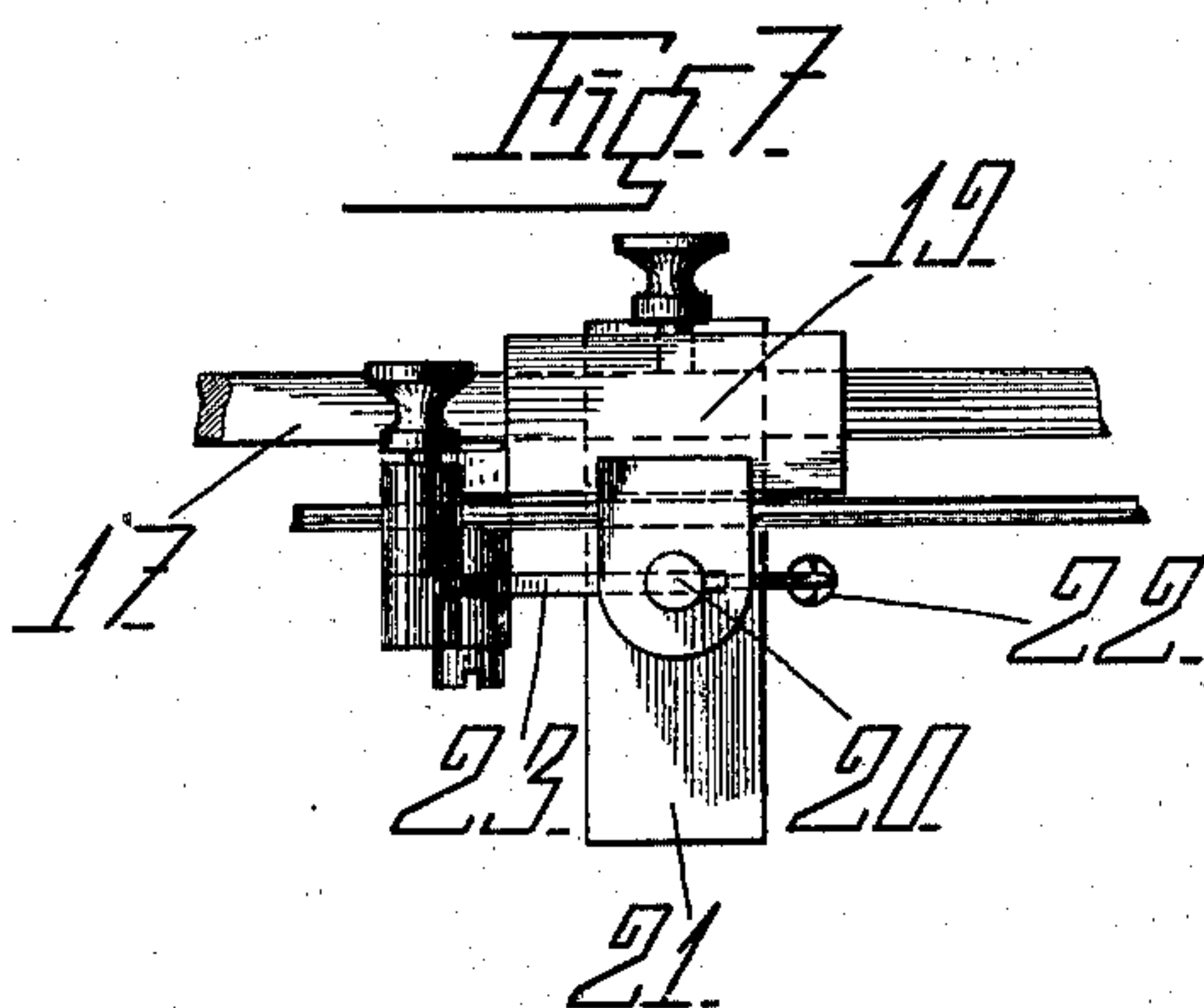
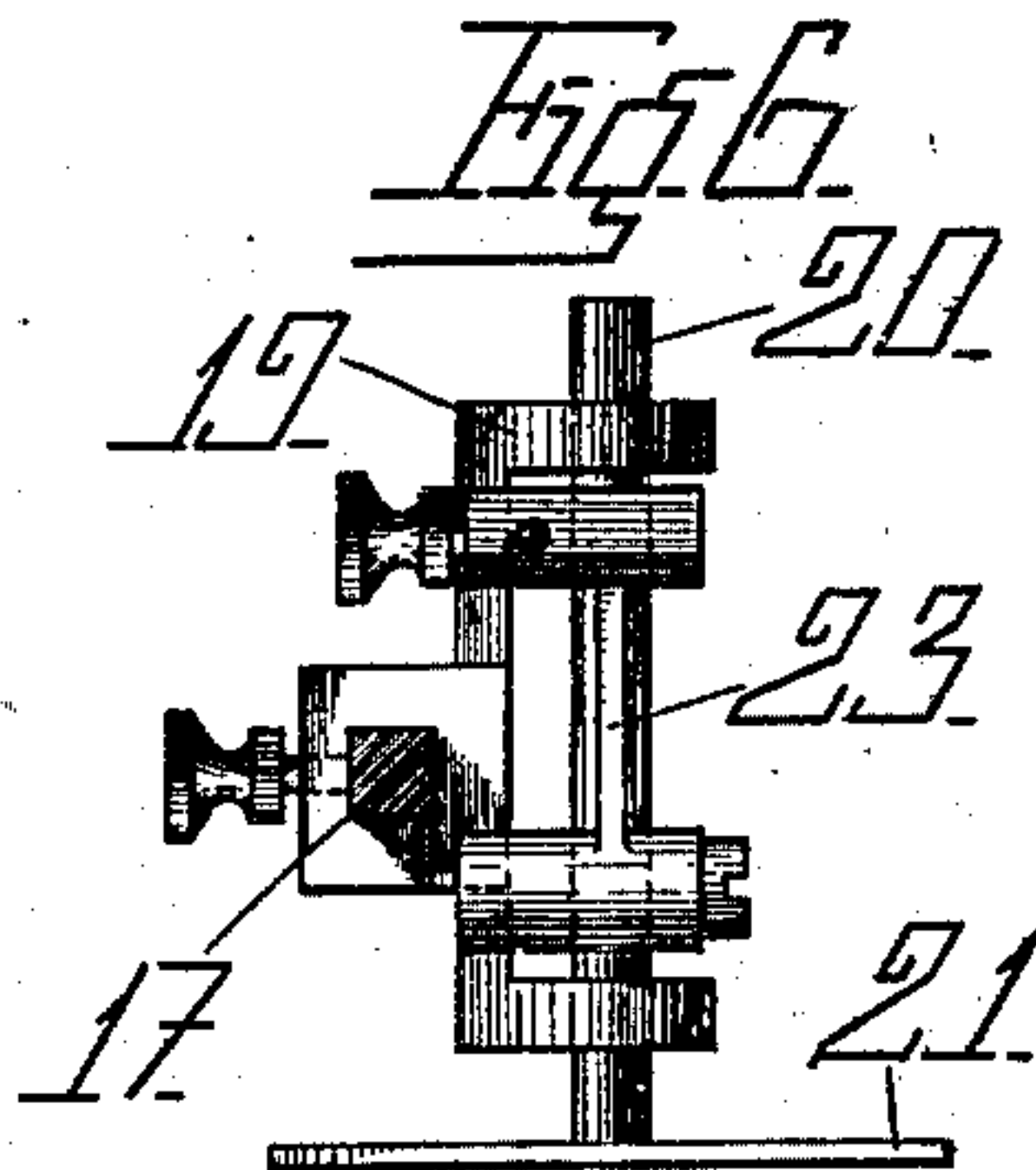
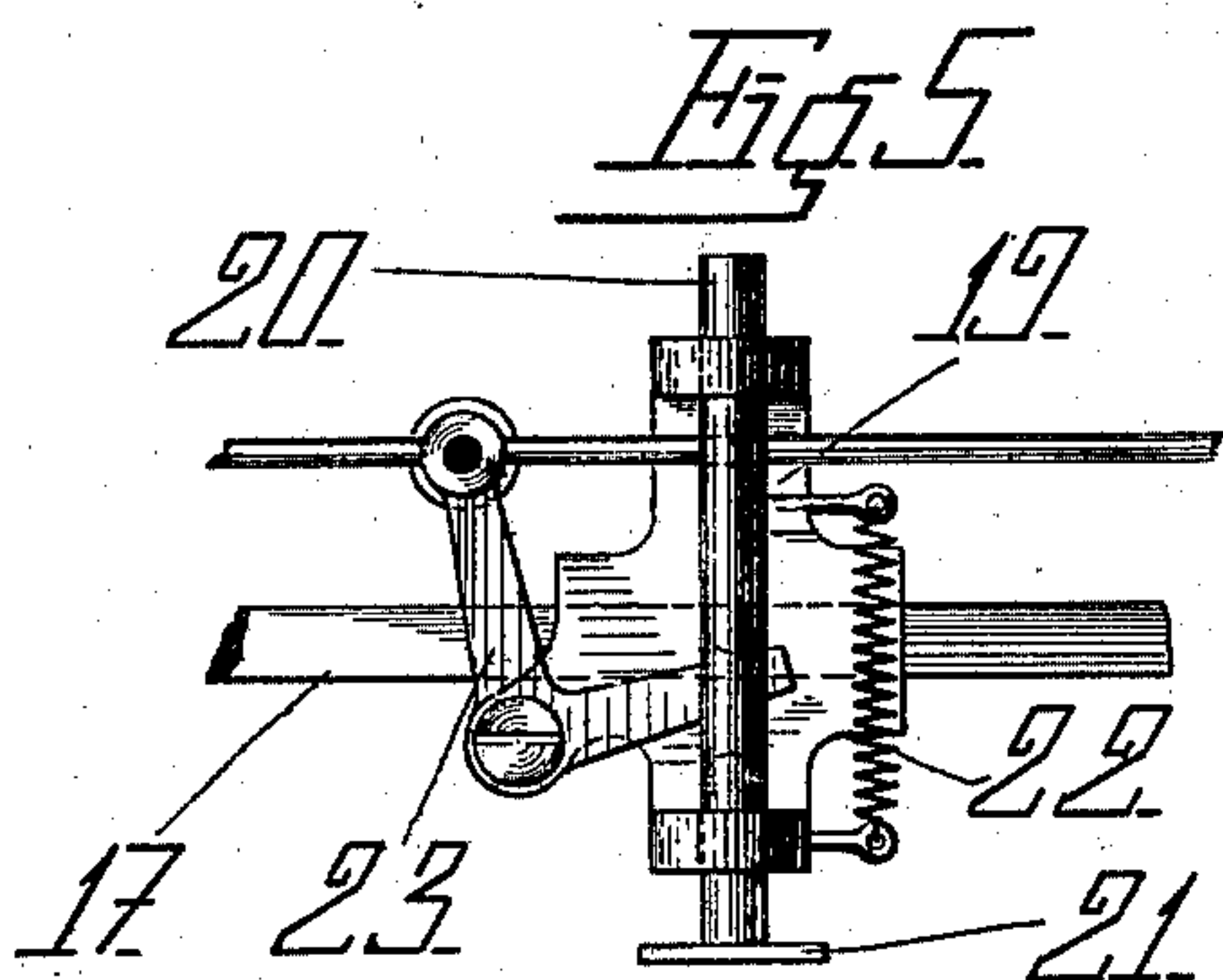
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3 SHEETS—SHEET 3.



WITNESSES:

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INVENTOR.

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UNITED STATES PATENT OFFICE.

ERNST JULIUS HALLBERG, OF STOCKHOLM, SWEDEN.

PAPER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 750,453, dated January 26, 1904.

Application filed July 8, 1901. Serial No. 67,521. (No model.)

To all whom it may concern:

Be it known that I, ERNST JULIUS HALLBERG, printer, a subject of the King of Sweden and Norway, and a resident of David Bagares gata No. 5, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in or Relating to Paper-Feeding Machines, of which the following is a specification, reference being made to the accompanying drawings.

The present invention relates to improvements in paper-feeding machines; and it consists of a device the principal parts of which are located above the pile of paper placed on the machine-table, the said device having for its purpose partly to feed one sheet after another, so that there will be a stop in the feeding action between each sheet and partly that that part of the device which causes the stoppage or halt in the feeding simultaneously may serve as a means to withhold all the sheets in the pile except the top one, which alone is intended to be then removed from the pile.

A device constructed according to this invention is shown in the accompanying drawings.

Figures 1 and 2 show the device in side elevation in two different positions, and Fig. 3 in plan. Fig. 4 is a detail view of a modified form of presser-foot. Figs. 5, 6, and 7 are respectively a side elevation, a front elevation, and a plan view, on a larger scale, of the presser device shown in Figs. 1 to 3.

1 is the machine-table, upon which is placed, as indicated in Figs. 1 and 2, the paper to be fed forward. At the rear part of the table is journaled a shaft 2, provided at a suitable place with a step-pulley or the like, by means of which the shaft is rotated. At about the middle of the width of the table the shaft 2 passes through one pivot of a framing-piece 3, which is journaled in and carried by a bearing 4 and which is provided with two rods or bars 5 and 6, between the forward ends of which is journaled a friction-wheel 7 for the feeding of the paper. Within the framing-piece and on the end of the shaft 2 is fixed a rope or belt pulley 8, while a corresponding pulley 9 is carried on the shaft of the wheel

7, which is in this way rotated. In order to regulate the pressure of the wheel against the paper to be fed forward, and thus also the feeding velocity, the weight of the wheel and the parts belonging thereto are balanced by an adjustable counterweight 10, (or an adjustable spring,) attached to a rod 11, which by means of a joint is connected to the framing-piece on the opposite side of the feed-wheel and rests against a lug 12, (see Fig. 3,) projecting from the same.

The shaft of the feed-wheel 7 carries two arms 13 and 14, the nave of which is loosely mounted on the shaft. The end of the arm 13, the upper one, is by means of a joint connected to a rod 15, the other end of which is in a similar way connected to a fixed arm 16, projecting from the bearing 4. The length of the rod 15 is equal to the length of the rod 5, while the lengths of the arms 13 and 16 are alike, so that these rods and arms form together a parallelogram. From the end of the arm 14 projects backward a bar 17, the direction of which is about parallel to the surface of the machine-table, and the rear end of which is carried by a rod 18, connected to the arm 13. To the bar 17 is movably attached a frame or support 19, which may be adjusted and fixed at a desired point along the bar 17 and which carries a slide 20 with a presser-foot 21, acted upon by a spring 22, the tension of which tends to press the foot upon the pile of paper. The frame 19 carries besides a bell-crank lever 23, pivotally connected to the same and having its one arm in gear with the slide 20, while its other arm is adjustably connected with a lever-arm 24, attached to a shaft 25, which is journaled at the rear part of the machine. By means of an arm 26 and rod 27 (see Fig. 3) this shaft is in connection with the feed-regulating mechanism, which may be of any suitable construction (for instance, like the one forming the object of my application, Serial No. 67,523, filed simultaneously with this application) and which is so designed that some suitable part of the mechanism is released or readjusted when the front edge of the advanced sheet has reached a certain point. If thus during the working of the machine the parts

of the device in question are in the positions shown in Fig. 1—that is to say, the rotating-wheel 7 in contact with the paper and the presser-foot 21 raised by the bell-crank lever 23—some of the upper sheets being then fanned out, the spring 22 stretched, and the mechanism in locked position, this fanning out will continue until the front edge of the uppermost sheet has reached the said point for the readjustment of the mechanism; but as soon as this readjustment takes place the resistance will give way, (in consequence of the rod 27 being in connection with said mechanism,) whereby the spring 22 has been kept stretched, the presser-foot 21 being thus moved down upon the paper by the spring. As, however, the feed-wheel 7 and parts belonging thereto are balanced by the counterweight 10, so that it rests against the paper with only a slight pressure, and the power of the spring, moreover, is in excess of the amount of that pressure, the wheel will be lifted from and be brought out of contact with the paper as the presser-foot is lowered. As, further, all the sheets in the pile are of the same length in the feed direction and the front edge, and thus also the rear edge of each sheet always is at a determined point at the moment of the readjustment of the mechanism, while the support 19 may be fixed at a desired place on the bar 17, it is evident that the said support may be so placed that the presser-foot when descending against the paper will always strike just behind the rear edge of the uppermost sheet. In Fig. 1 is shown the position of the parts just before the readjustment of the mechanism, and in Fig. 2 when the same is readjusted. In the last-mentioned figure is clearly shown the disengaged state of the uppermost sheet, while the second sheet and those beneath are retained by the presser-foot.

Owing to the fact that the entire drawing-out apparatus is carried only by the framing-piece 3, which is journaled in its bearing-support 4, the whole apparatus may be raised in the position shown in dotted lines in Fig. 1, thus allowing a new pile of paper to be placed on the machine-table. In order that the counterweight may not prevent such raising, its rod 11, as above mentioned, is connected to the framing-piece by means of a joint, so that the counterweight need not participate in the rotating motion of the framing-piece round its pivots. When the wheel has been raised a certain distance, the counterweight will be supported by a bracket 28, placed underneath the same and rest thereon during the continued raising of the apparatus, as clearly shown in Fig. 1. In its raised position the apparatus is prevented from turning over to the opposite side by a projection 29 (see Figs. 1 and 2) on the bearing 4, against which the framing-piece rests. On account of the rods and arms which carry and hold

the bar 17 in its position being arranged in the form of a parallelogram with the arm 16 fixed it is evident that the bar during the raising of the apparatus will move parallel with itself, which has the great advantage that the bar during the drawing out of the paper will be until the last sheet parallel to the position it had at the commencement of the operation.

During the drawing-out operation the wheel 7 is intended to work just above the central line of the paper, and might for this reason be adjustably mounted on its shaft. In case any sheet, nevertheless, should show a tendency to move obliquely during the operation there is arranged on either side of the pile a rule or guide 30, which is adjustably fixed on the table and by being placed against the side of the pile forms a guide for the sheet during the drawing or feeding out of the same.

It is evident that several drawing-out apparatus placed symmetrically above the pile may be used simultaneously.

With regard to the retaining device it will be easily understood that the up-and-down movable rod, with its presser-foot 21, can be dispensed with if the fulcrum of the bell-crank-lever 23 is placed sufficiently near the paper, and the forward arm of the same is at its end provided with a suitable contact surface or device (see Fig. 4) which when lowered will press upon the paper. In this case the spring will be connected with the lever, and a pin 31 will be fixed at a suitable place in the support to limit the movement of the lever.

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

1. An apparatus for feeding single sheets of paper from a pile comprising a frame movable toward and from the pile, a suitable feeding device carried thereby, a presser device carried by said frame in rear of said feeding device, a spring tending to force said presser device in contact with the pile of sheets and simultaneously raise the frame and feeding device, and means for holding said presser device raised against the tension of the spring, substantially as described.

2. An apparatus for feeding single sheets of paper from a pile, comprising a frame movable toward and from the pile, a feed device carried thereby, a presser device adjustably carried by said frame, a spring tending to force said presser device in contact with the pile and thereby raise the feed device from the pile, and means for holding said presser device out of contact with the pile against the tension of the spring, substantially as described.

3. In combination, a pivoted supporting-frame, a feeding device mounted thereon with means for operating it, a second frame carried by the pivoted support and adjustable toward

and from the feed device, a spring-pressed presser device carried by said frame, and means for holding said presser device elevated until a sheet has been fed from beneath the presser device, substantially as described.

4. In combination, a pivoted supporting-frame, a feed device carried thereby, a bar supported from the frame, means whereby said bar is maintained in a horizontal position without regard to its elevation, a frame adjustably mounted on said bar, a presser device carried by said frame and means for lowering said presser device into contact with the pile and simultaneously raising the feed device, substantially as described.

5. In combination, the pivoted frame or support, a feed device carried thereby, a two-armed lever carried by said frame, a bar having its ends linked to said two-armed lever, a connection from said two-armed lever to a stationary part of the device, a frame adjustably carried by said bar, a presser device movably carried by said frame, and means for operating said presser device, substantially as described.

6. In combination, a pivoted frame or sup-

port, a counterbalance therefor, a jointed connection between said counterbalance and frame permitting raising of the frame, a feed device carried by the frame, a presser device carried by the frame in rear of the feed device and means whereby the presser device may be lowered into contact with the pile and the feed device raised on the feeding of the top-most sheet, substantially as described.

7. In combination, a vertically - movable frame or support, a feed device carried thereby, a vertically-movable presser device supported by said frame, a spring tending to force the presser device down into contact with the pile of paper and elevate the frame, a bell-crank lever having one arm engaging said presser device and connections to the other arm for holding the presser device elevated against the tension of the spring, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ERNST JULIUS HALLBERG.

Witnesses:

CARL TH. SUNDHOLM,
HANS B. OHESSON.