

(No Model.)

4 Sheets—Sheet 1.

F. H. VAN LOOZEN.  
FEEDING MECHANISM FOR PRINTING PRESSES.

No. 474,884.

Patented May 17, 1892.

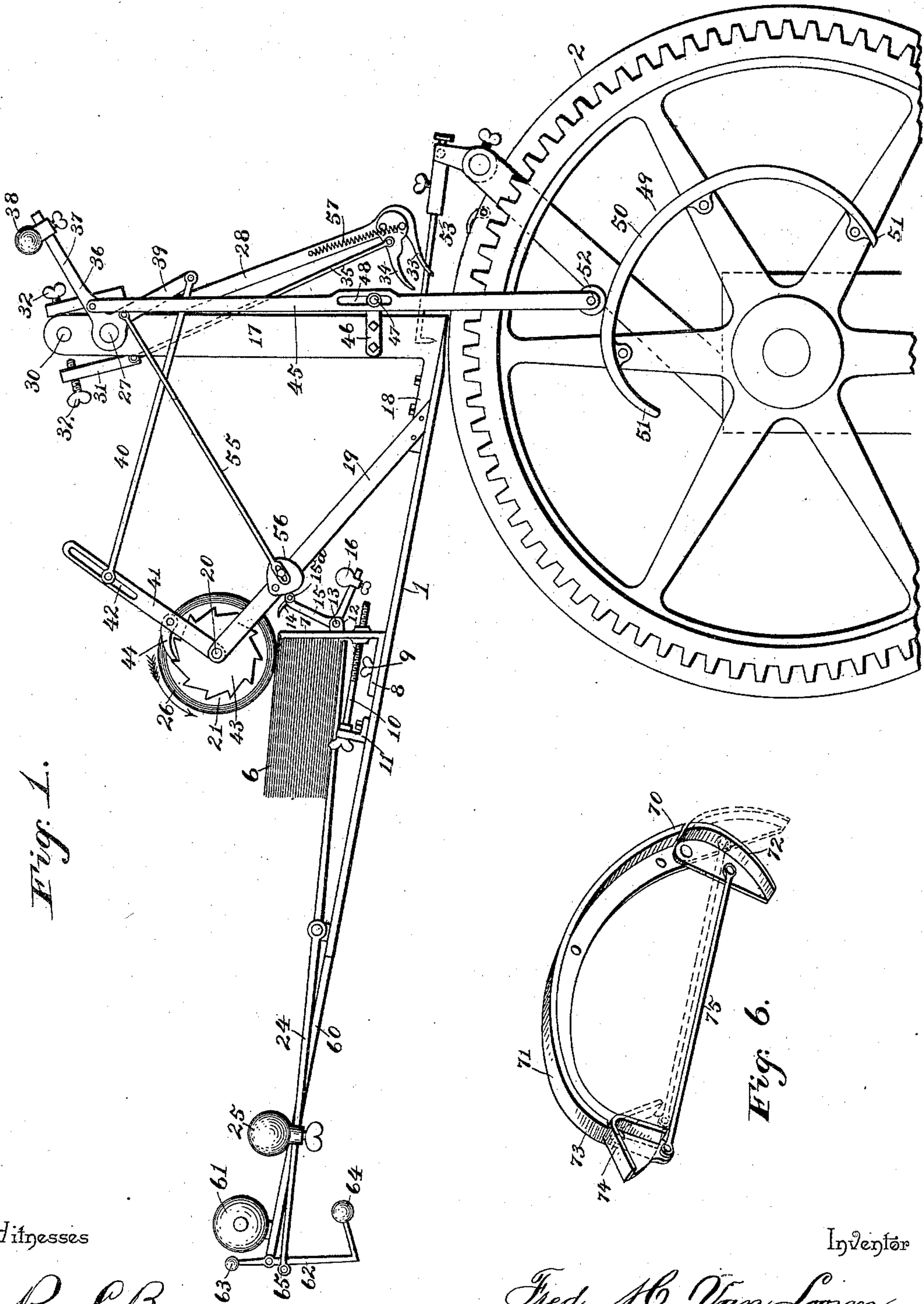


Fig. 1.

Fig. 6.

Witnesses

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Inventor

By his Attorneys,  
Fred H. Van Lozen,  
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(No Model.)

4 Sheets—Sheet 2.

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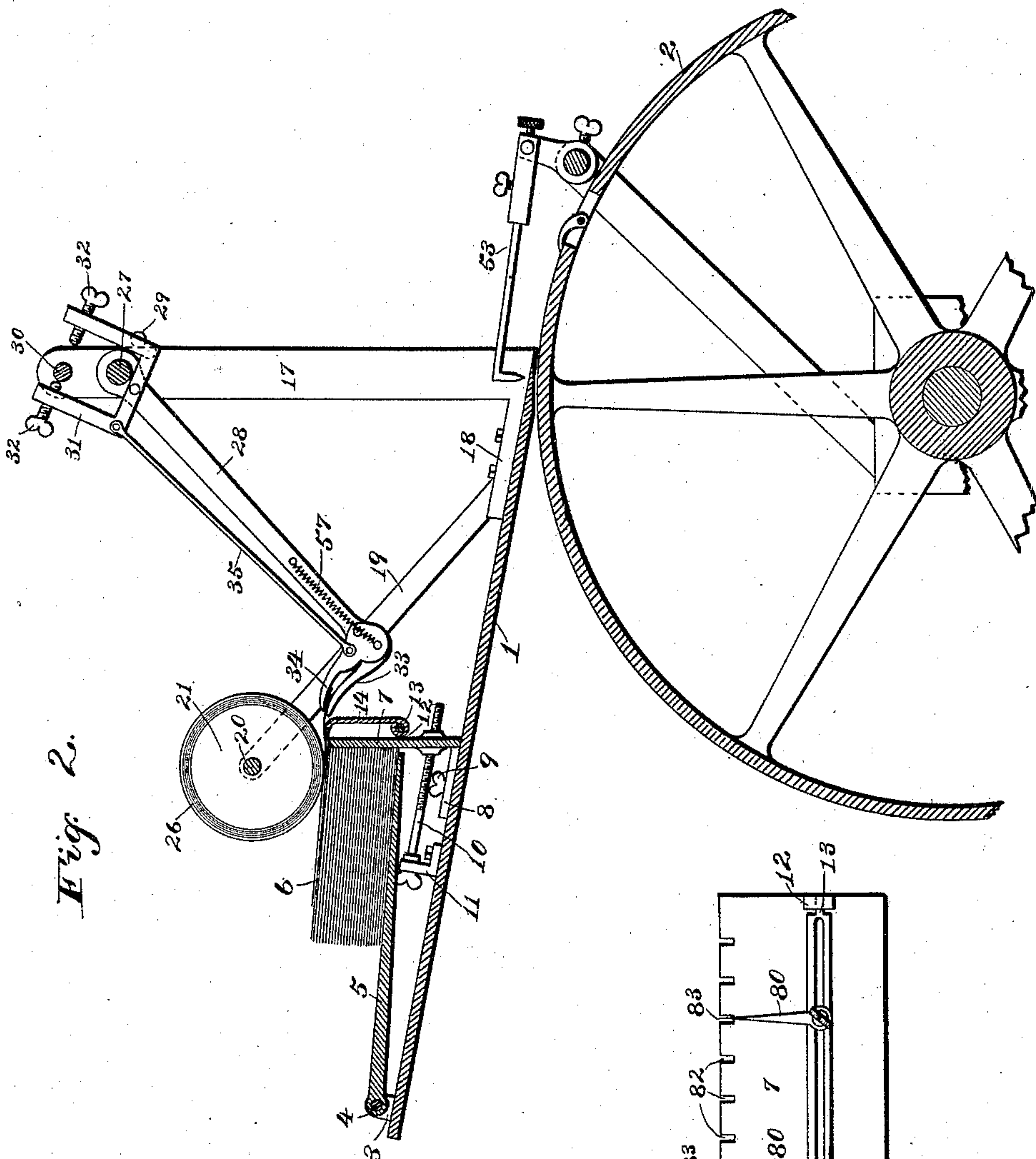


Fig. 2.

Fig. 8.

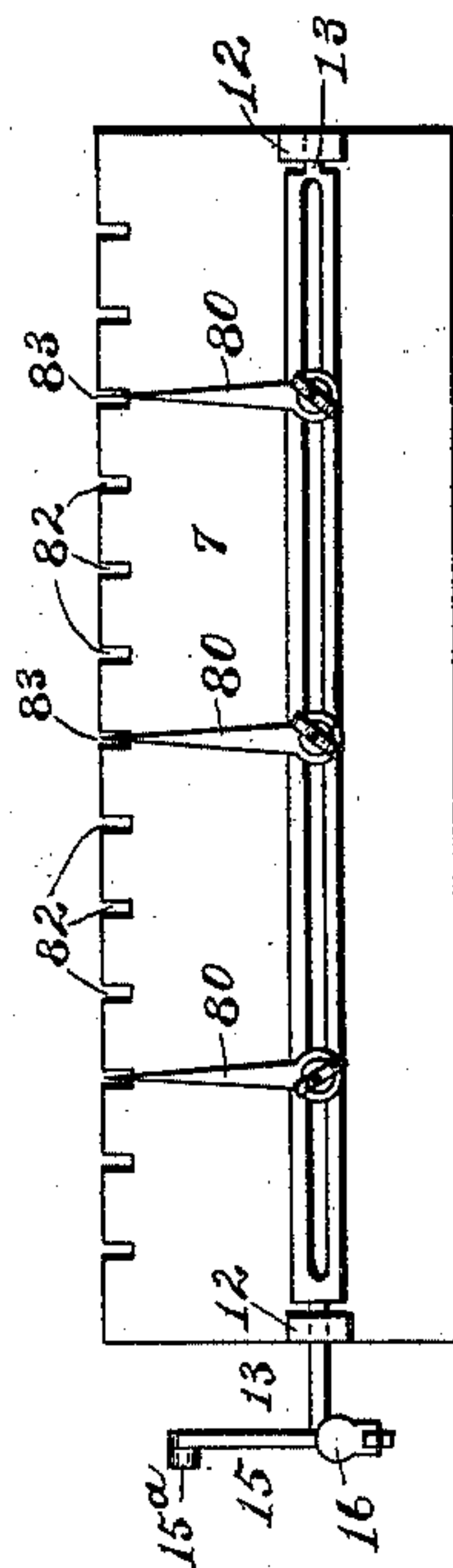
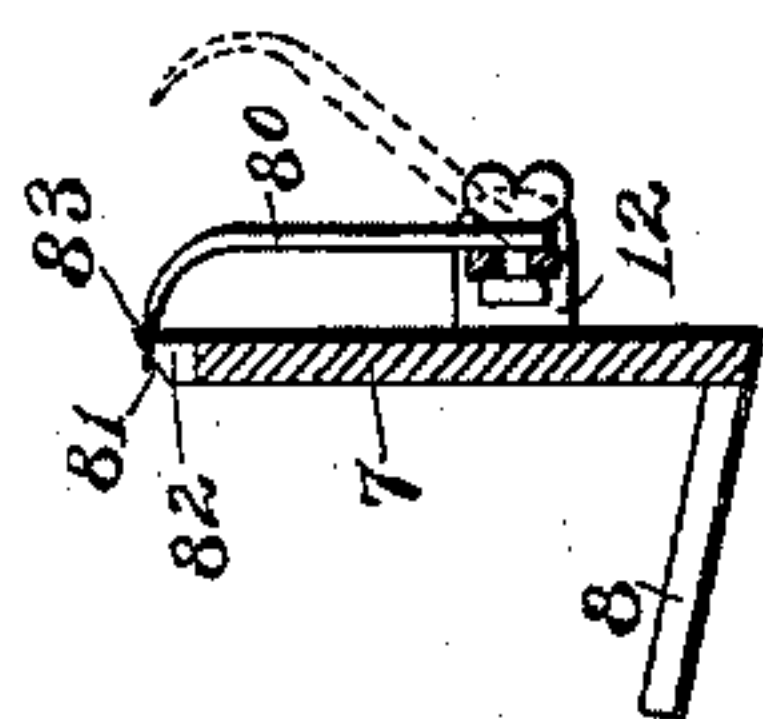


Fig. 7.

Witnesses

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Inventor



(No Model.)

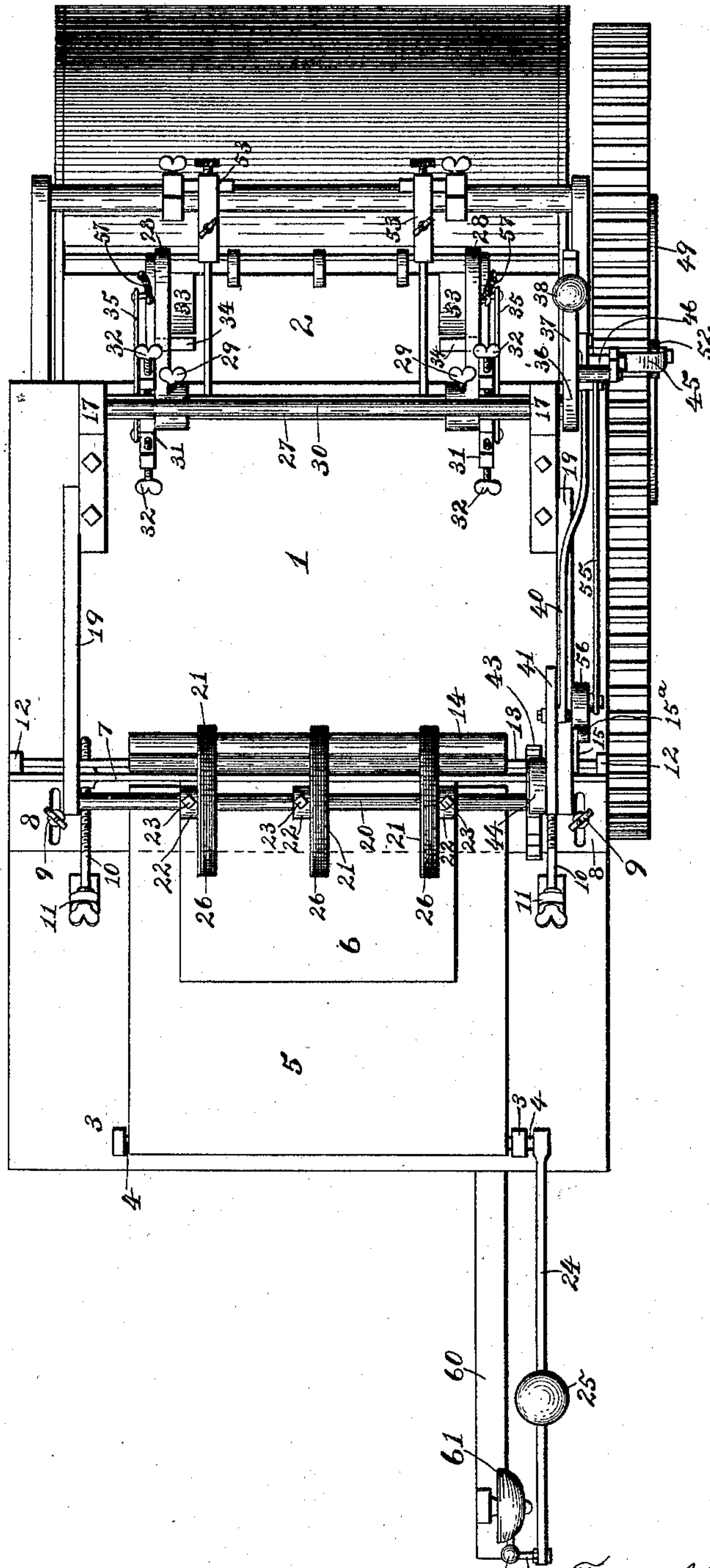
4 Sheets—Sheet 3.

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Fig. 3.



Witnesses

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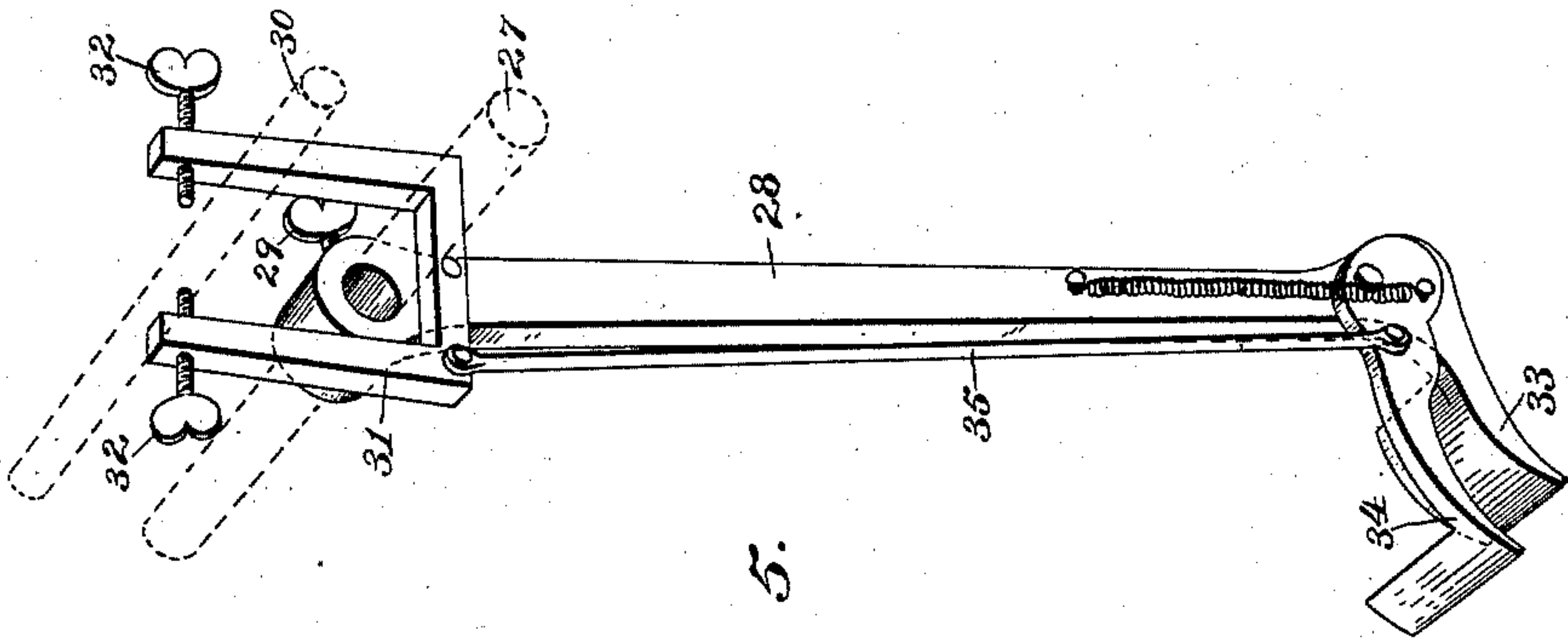
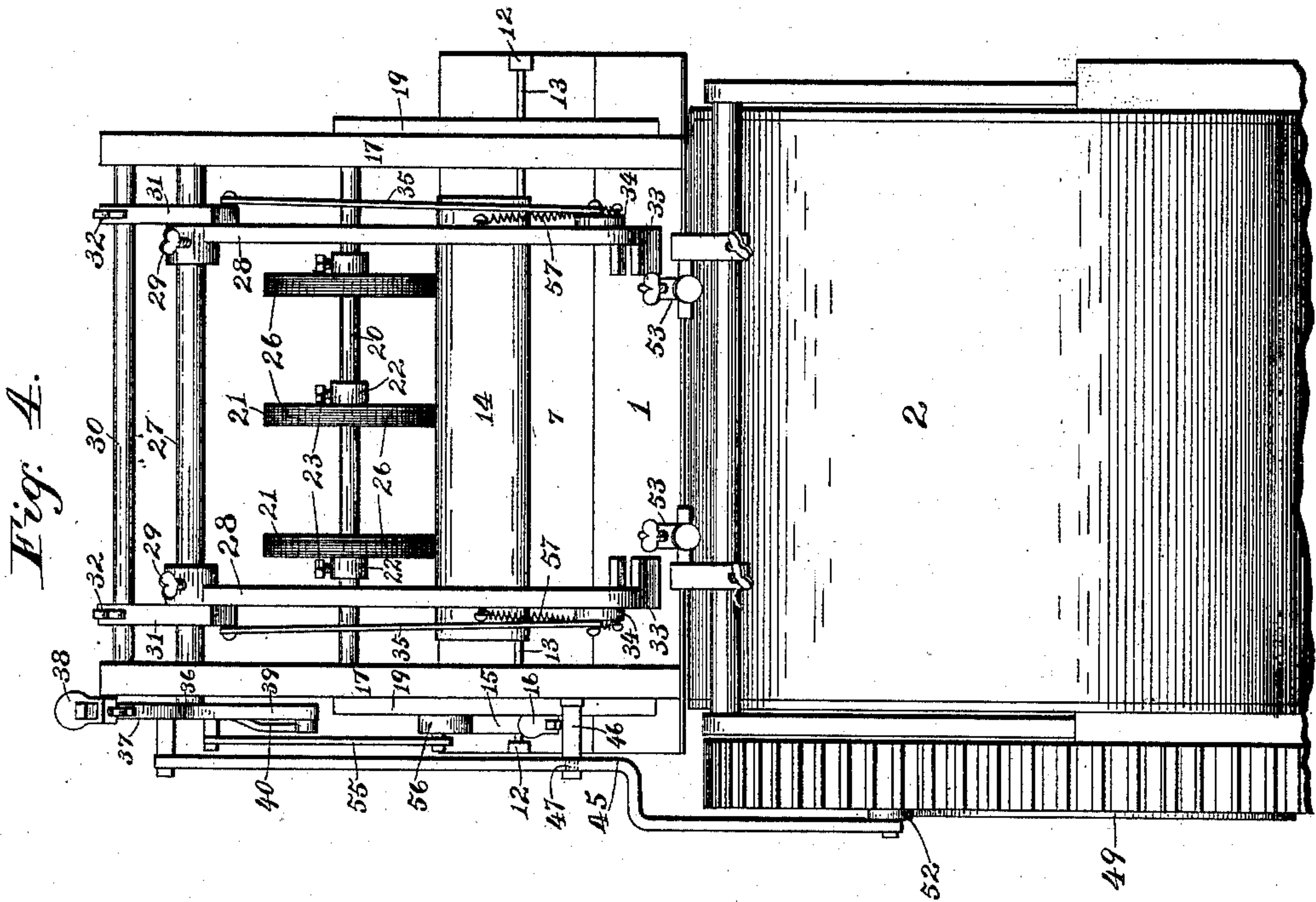
(No Model.)

4 Sheets—Sheet 4.

F. H. VAN LOOZEN.  
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Patented May 17, 1892.



Witnesses

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# UNITED STATES PATENT OFFICE.

FRED HENRY VAN LOOZEN, OF CLEVELAND, OHIO.

## FEEDING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 474,884, dated May 17, 1892.

Application filed May 20, 1891. Serial No. 393,388. (No model.)

*To all whom it may concern:*

Be it known that I, FRED HENRY VAN LOOZEN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Feeding Mechanism for Printing-Presses, of which the following is a specification.

My invention relates to printing-presses, and has for its especial object to provide a feeding device to be used on cylinder-presses.

With this object and such others as fairly fall within the scope of the invention in view my invention consists of the mechanism illustrated in the accompanying drawings, the peculiar construction, combination, and arrangement of which will be fully described hereinafter, and the specific points of novelty particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of my improved feeding mechanism in position upon a press. Fig. 2 is a longitudinal section thereof, showing the parts in another position. Fig. 3 is a plan view of the invention. Fig. 4 is a front elevation of the same. Fig. 5 is a detail perspective view of one of the feeding-levers and its attachments. Fig. 6 is a detail perspective view of a cam to be used on presses in which the cylinder makes two revolutions to every impression. Figs. 7 and 8 are detail views of a modification.

Similar numerals of reference indicate corresponding parts in the several views, referring to which—

1 designates the feed-table, and 2 the cylinder, of an ordinary cylinder printing-press. Journaled in lugs 3 upon the table 1 is a shaft 4, which extends transversely across the said table and has secured thereto between the lugs 3 a leaf sheet-support 5, upon which the paper 6 is placed. A thin board or plate of metal 7 is placed transversely across the table just in front of the leaf 5, so that the edges of the paper when placed upon the leaf will rest against the said plate 7. Upon the lower edge of the strip 7 are formed rearwardly-extending lugs 8, which are slotted to receive set-screws 9, which secure the said strip adjustably to the table. Adjusting-screws 10 are mounted in lugs 11 upon the table 1 and pass through threaded openings in the ends of the plates 7. Thus the plate 7 may be ad-

justed forwardly and rearwardly by means of the screws 10 and clamped in any desired position by the set-screws 9.

Lugs 12 are formed upon the front of the strip 7 near the ends thereof, and in these lugs is journaled a rod 13, having a thin supplemental separating or intercepting plate 14 secured thereto. The plate 14 has its upper end bent inwardly above the upper edge of the plate 7. A bell-crank lever 15 is secured upon the outer end of the rod 13, the horizontal arm of which carries a weight 16, which normally holds the plate 14 away from the plate 7. The upright arm of the said bell-crank lever is arranged to be operated upon by mechanism (hereinafter described) to move the upper edge of the plate 14 over the upper edge of the plate 7.

Upon the front corners of the feed-table 2 are uprights 17, which are secured to the said table by rearwardly-extending feet 18. Arms 19 are secured to the feet 18 and extend rearwardly and upwardly, having a shaft 20 journaled in their rear ends and extending across over the paper-receptacle. Disks 21 are centrally perforated and have collars 22 around the perforations. These disks are mounted upon the shaft 20 and are adjustable longitudinally thereon. Set-screws 23, which pass through the collars 22, serve to hold the disks at any desired position upon the said shaft.

An arm 24 is secured upon one end of the shaft 4 and extends rearwardly, having a weight 25 adjustably secured thereon. The paper 6 is placed upon the leaf 5 and the weight adjusted so as to raise the paper and press it in contact with the rubber tires 26 upon the disks 21.

A transverse shaft 27 is journaled in the upper ends of the uprights 17 and has mounted thereon arms 28, which are adjustable longitudinally thereon and may be secured thereto in any desired position by means of set-screws 29. A shaft or rod 30 is rigidly secured to the upper ends of the uprights 17 and extends across the press a little above and parallel with the shaft 27. U-shaped frames 31 are pivoted upon the upper ends of the arms 28, below the shaft 27, and extend upwardly and partially inclose the rod 30. Adjusting-screws 32 pass through the upwardly-extending arms of the U-shaped frames 31 in



such position that their inner ends may be brought very near the rod 30. On the lower end of the arms 28 are formed flat rearwardly-extending jaws 33, and just above these jaws are pivoted jaws 34, the rear ends of which may be brought in contact with the rear ends of the jaws 33. Link-rods 35 are pivoted at one end to the U-shaped frames 31 and at the other ends to the pawls 34, just in rear of their pivotal points. Thus it will be seen that if the shaft 27 be rotated to swing the jaws 33 of the arms 28 toward the paper-receptacle one of the adjusting-screws of the U-shaped frames will impinge against the rod 30 and hold the frames from movement, the effect of which will be that the link-rods 35 will press the jaws 34 down into contact with the rear ends of the jaws 33.

A bell-crank lever 36 is secured at its angle to one end of the shaft 27. The horizontal arm 37 of the bell-crank lever carries a weight 38, which tends to move the vertical arm 39 of the said lever rearwardly, as will be obvious. The vertical arm 39 depends upon the angle of the lever and has pivoted to its lower end one end of a link-rod 40. Upon one end of the shaft 20 is loosely mounted the lower end of a lever 41, which extends upwardly and is slotted, as at 42, and the rear end of the link-rod 40 is pivotally and adjustably secured in the slot 42. A ratchet-disk 43 is rigidly secured to the end of the shaft 20, adjacent to the lever 41, and a pawl 44 upon the latter is arranged to engage the teeth of the ratchet-disk 43, so that when the said lever is moved rearwardly the said pawl will turn the ratchet-disk, and with it the disks 21, in the direction of the arrow; but when the lever is moved forwardly the pawl will slip idly over the ratchet-teeth. Upon one of the arms 19 is pivoted a cam 56 in proper position to act upon the vertical arm of the bell-crank lever 15, which latter may be provided with an anti-friction roller 15<sup>a</sup>, and thus turn the shaft 13 to cause the upper curved edge of the strip 14 to pass over the upper edge of the strip 7. The cam 56 is operated by a link-rod 55, the upper end of which is pivoted to the bell-crank lever and the lower end thereof is pivoted to the cam 56 by means of slot connection, as shown, to allow for adjustment.

The link-rod 45 is pivoted at its upper end to the horizontal arm of the bell-crank lever 36 and extends downwardly near the end of the cylinder 2. A bracket 46 is secured to the side of the upright 17, adjacent to the link-rod 45, and an anti-friction roller 47 upon the said bracket extends into a slot 48 in the said link-rod 45 to guide the latter in its vertical movement.

Upon the end of the cylinder 2, or upon a gear-wheel attached thereto, is secured a curved frame or cam 49, the central part 50 of which is curved concentric with the cylinder and the ends are curved inwardly toward the center of the cylinder, as shown at 51. The lower end of the link-rod 45 is provided

with an anti-friction roller 52, which extends into the path of the casting 49, and as the cylinder revolves the curved end 51 of the casting will come in contact with the said anti-friction roller and raise the link-rod, which will be held in its raised position until the whole length of the casting has passed the roller.

The press is provided with the usual paper-guides 53 and the other appliances generally used upon this form of press, which latter, however, are not shown in the drawings.

The operation of the invention is as follows: Supposing the initial or starting position to be that shown in Fig. 1, in which the bar 45 is held in a raised position by the casting 49 and the arm 28 is in its forward position, the paper is placed upon the leaf 5 and the weight 25 adjusted to raise the said paper and keep it pressed against the rubber tire on the disks 21. This brings the top sheet just above the upper edge of the plate 7. A sheet may be placed upon the front edge of the feed-table, beneath the guides, in position to be caught by the grippers upon the cylinder. When the press is started, the sheet so placed in position will be caught by the cylinder in the usual manner, and after it has been carried off of the feed-table the cam 49 will pass from under the bar 45, thus allowing the weight 38 to move the horizontal arm of the bell-crank lever 39 downwardly until stopped by the end of the slot 48 in the bar 45 coming in contact with the roller 47. This movement of the bell-crank lever will rotate the shaft 27 and swing the arms 28 rearwardly. At the same time the lower arm of the bell-crank lever 39 will also move rearwardly and, through the link-rod 40, the lever 41, and the pawl 44, rotate the shaft 20, carrying the disks 21, in the direction of the arrow. The effect of the rotation of the disks will be that their rubber tires, which rest upon the paper, will move the upper sheet of the latter forwardly. As this takes place the link-rod 55, having one end pivoted to the bell-crank lever 39 and the other end to the cam 56, pivoted upon one of the arms 19 in such position that it will act upon the vertical arm of the bell-crank lever 15, will actuate the said cam and bell-crank lever to rotate the shaft 13 and cause the rearwardly-curved upper edge of the separating or intercepting strip or plate 14 to pass over the edge of the strip 7 against the lower side of the advancing sheet, and thus intercept the next sheet and prevent it from adhering to and being fed with the top sheet. These several movements are so timed that as the top sheet is being advanced the flat jaws 33 upon the arms 28 will pass beneath and the ends of the jaws 34 above the front edge thereof. As the arms 28 move rearwardly one of the adjusting-screws in the U-shaped frames 31 will impinge against the rod 30, and thus hold the said frames from movement. The further movement of the levers 28 will cause the link-



rod 35 to press the jaws 34 downwardly toward the jaws 33. A spring 57 is secured to each of the arms 28 and to the lower parts of the jaws 34, so as to cross their pivots, and when the said pawls have been pressed down far enough to cause the springs to pass in front of their pivots, and thus bring the rear ends of the pawl down upon the paper, the latter will be held between the jaws 33 and 34, as shown in Fig. 2. The parts will remain in this position until the casting 49 passes under the roller 52 of the bar 45, thus raising the latter and bringing the parts again into the position shown in Fig. 1. As the levers 28 move forwardly they carry the sheet of paper with them, thus bringing its edge beneath the guides, at which time the other adjusting-screw in the frames 31 will come in contact with the rod 30 and stop the movement of the frames 31. Thus further forward movement of the levers will cause the link-rod 35 to pull the jaws 34 upwardly, and thus release the paper, which will be left in the proper position to be caught by the grippers on the cylinder. When the pawls 34 have moved upwardly far enough to cause the spring 57 to pass in rear of their pivots, the said spring will pull the pawls upwardly and hold them in a raised position until the next backward movement of the lever. Thus it will be seen that at each revolution of the cylinder one sheet of paper is fed thereto.

The table 1 has a rearward extension 60, upon the extremity of which is a bell 61. A lever 62 is pivoted in close proximity to the bell, and has upon the upper end thereof a hammer 63 in position to strike the bell when the lever is vibrated rearwardly. The lever extends downwardly and is bent at its lower end toward the front of the machine and provided with a weight 64. When paper is upon the leaf 5, a pin 65 upon the arm 24 holds the lever in a forward position, thus keeping the hammer 63 out of contact with the bell. As the paper is fed to the press the leaf 5 gradually rises and the arm 24 falls lower, until when the supply of paper is nearly exhausted the pin 65 passes below the bent lower end of the lever 62, thus allowing the weight 64 to swing the hammer 63 upon the upper end of the lever against the bell, sounding an alarm to warn the attendant that the paper is nearly exhausted.

In Fig. 6 is shown a flanged cam to be used on presses in which the cylinder makes two revolutions to every impression. In this instance the flanged cam is curved concentric with the cylinder from the points 70 to 71, and to the front end is pivoted an extension 72. The rear end of the cam is bent downwardly, as at 73, and has pivoted to its extremity an extension 74, the rear end of which is connected by a link-rod 75 with the extension 72. In operation the roller 52, after passing over top of the main or central part of the cam, passes down the bent rear end thereof and impinges against the extension 74, thus

throwing the parts into the position shown in dotted lines. Upon the next revolution the extension 72 is raised and passes over the roller 52 without actuating it. Thus the main portion of the cam passes over the roller without touching it; but the under side of the rear extension 74 strikes the roller and is thrown back to its normal position, thus bringing the front extension into position to raise the roller on its next revolution. Thus the roller 52 and bar 45 will be raised to actuate the feeding mechanism only on each alternate revolution of the cylinder.

It will be understood that I do not wish to confine myself to the precise construction herein described and shown, as many modifications may be made therein without departing from the spirit of the invention—as, for instance, in lieu of the supplemental plate or strip 14 I may use a series of knives 80, as shown in Fig. 7, suitably adjustably secured to the shaft 13 and arranged to be operated in the same manner as the plate 14. In this instance the upper edge of the plate 7 will be beveled where the paper passes over it, as at 81, and have notches 82 along its upper edge for the curved points 83 of the knives to pass through, all as clearly shown in Figs. 7 and 8.

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

1. In a feeding mechanism for printing-presses, the combination of a pivoted and counterbalanced sheet-holding leaf, a longitudinally-adjustable end plate located in front of said leaf and forming a rest for the front edges of the sheets upon the leaf, a separating or intercepting plate secured to said end plate, means for operating said separating or intercepting plate at intervals, feeding-rollers located above said table, and means for carrying the separated sheets from said supporting-leaf to the cylinder of the press, substantially as set forth.

2. In a feeding mechanism for printing-presses, the combination of a pivoted and counterbalanced sheet-holding table, a longitudinally-adjustable end plate located in front of said leaf or table, the supplemental intercepting or separating plate secured to the front of said end plate and adapted to work over the top edge thereof, feeding-rollers located directly above said end plate and pivoted leaf, means for simultaneously actuating said rollers and separating-plate, sheet-carrying devices connected with the feeding and separating devices, and means for operating the carriers and separating devices by the revolution of the cylinder, substantially as set forth.

3. In a feeding mechanism for printing-presses, the combination of a counterbalanced paper-support, a series of parallel rubber-tired disks mounted upon a single shaft 20, journaled directly above said paper-support, a ratchet-disk upon one end of said shaft 20, a slotted lever 41, loosely mounted upon one



end of said shaft and provided with a pivoted pawl adapted to engage the teeth upon said ratchet-disk, an operating link-rod 40, adjustably connected with said slotted lever, and means for reciprocating said rod by the revolutions of the cylinder, substantially as set forth.

4. In a feeding mechanism for printing-presses, the combination of a paper-holding leaf secured to the feeding-table of the press and provided with a weighted extension-arm, a longitudinally-adjustable end plate located in front of said leaf and adapted to form a rest for the front edges of the sheets, a supplemental intercepting and separating plate pivotally mounted upon said end plate and provided with an upper curved edge adapted to pass over the top of said end plate and under the top sheet of paper and intercept the second, and also provided with a weighted crank at one end to hold the same normally away from the paper, friction-disks located above the paper-receptacle and adapted to feed the same over the top of the end plate and the interceptor, means for simultaneously actuating said rollers and weighted cranks, and means for carrying the separated sheets to the cylinder of the press, substantially as set forth.

5. In a feeding mechanism for printing-presses, the combination of the counterbalanced sheet-holding leaf, a longitudinally-adjustable end plate located at the front edge of said leaf and provided with a series of notches along its upper edge, a rock-shaft journaled transversely upon said end plate, a series of separating and intercepting knives having an upper curved end and adjustably secured to said shaft, the upper curved ends adapted to enter the said notches and to pass under the top sheet of paper and intercept the second sheet, and means for feeding said sheets of paper over the top edge of said end plate and interceptor to the press-cylinder, substantially as set forth.

6. In a feeding mechanism for printing-presses, the combination, with an automatic table-feed for feeding sheets one at a time, of swinging feeding-arms mounted upon a shaft journaled above the feeding-table of the press, spring-actuated jaws or grippers at the lower ends of said arms, U-shaped frames pivotally connected to the upper end of each feeding-arm, the transverse-rod mounted above said shaft and adapted to limit the movement of the U-shaped frames, a link connecting said U-shaped frames with the spring-actuated jaws to operate the same, a weighted lever mounted upon the outer end of said arm-shaft, an operating-bar connected to said weighted lever, and a cam-casting upon the cylinder to actuate said bar, substantially as set forth.

7. In a feeding mechanism for printing-presses, the combination, with a feed-table and cylinder, of the paper-holding leaf pivotally mounted upon said table, rubber-tired feeding-disks mounted upon a shaft located

above said paper-leaf, means for intermittently rotating said disks, a weighted arm projecting from said leaf and provided at its outer end with a projecting pin, an alarm-bell upon the feeding-table, a hammer-lever pivoted to the outer end of said feeding-table and provided with a weighted bent lower end, the said pin being adapted to normally engage said alarm-lever and override the lower weighted end of the same when the paper is exhausted and allow the alarm to be rung, and means for removing the separated sheets from the feeding devices to the cylinder of the press, substantially as set forth.

8. In a feeding mechanism for printing-presses, the combination, with a counterbalanced feeding-table or supplemental leaf, of an adjustable end plate located at the forward end of said leaf and adapted to inclose the paper, a separating and intercepting plate pivotally secured to said end plate and provided with an upper curved end adapted to pass over the top of said end plate and under the top sheet of paper, the same being also provided with a weighted bell-crank lever at one end, having a contact-roller, rubber-tired feeding-disks mounted upon a shaft journaled above said feeding-leaf, a ratchet-disk upon one end of said shaft, a longitudinally-slotted lever pivotally mounted upon said shaft and provided with a pawl adapted to engage the teeth of said ratchet-disk, an oscillating shaft journaled above the cylinder to the press, a cam-disk pivoted upon the frame of the press and adapted to engage said contact-roller upon the intercepting-plate lever, actuating rods or levers connected with said oscillating shaft and with the cam-disk and the slotted swinging lever, and means for actuating said oscillating shaft and carrying the separated sheets to the cylinder, substantially as set forth.

9. In a feeding mechanism for printing-presses, the combination of a paper-support, feeding-disks mounted upon a shaft 20, journaled above the paper-receptacle and having a pawl-and-ratchet attachment for rotating the disks at the proper times, swinging feeding-arms mounted upon a shaft 27, journaled above the feeding-table of the press, a bell-crank lever mounted upon one end of the shaft 27, one arm of which is connected with a pawl-and-ratchet attachment to rotate the feeding-disks, a weight 38 upon the horizontal arm of said bell-crank lever, a bar 45, connected with the same arm of said lever, guides for said bar, and a cam-casting upon the cylinder to actuate said bar and operate the feeding mechanism at the proper moment, substantially as set forth.

10. In a feeding mechanism for printing-presses, the combination of a paper-support, feeding-disks mounted upon a shaft 20, journaled above the paper-receptacle and having a pawl-and-ratchet attachment for rotating the disks at the proper times, feeding-arms mounted upon an oscillating shaft 27, jour-



naled upon the feeding-table of the press, jaws 33 upon the extreme lower end of said feeding-arms, spring-actuated jaws pivoted to said arms and facing the lowermost jaws, 5 U-shaped frames pivoted to the upper ends of the feeding-arms, a rod mounted above the shaft 27 within said U-shaped frames and adapted to limit the movement of the same, a link-rod 35, connecting the U-shaped frames 10 with the spring-actuated jaws, so that the latter may be operated by the former, a bell-crank lever secured to the end of the shaft 27, one arm of which is connected with the pawl-and-ratchet attachment to operate the 15 disks, a bar 45, connected with the other arm of the bell-crank lever, a suitable guide upon the frame of the press, a weight 38, mounted upon one arm of said bell-crank lever, and a cam-casting upon the cylinder to raise the 20 bar 45 to operate the feeding mechanism, substantially as set forth.

11. In a feeding mechanism for printing-presses, the combination, with a flanged cam-casting secured upon the cylinder of the press, 25 a double flanged extension pivoted on the extreme front end of said cam, adapted to form a continuation of the top and under sides, respectively, of the flange comprising said cam, a pivoted and flanged extension pivoted 30 on the rear end of the cam and also forming a continuation of the flange thereof, a link connecting said extensions, and a bar having a roller at the lower end adapted to rotate over the top of the flange of said cam to op- 35 erate the feeding mechanism and to change the position of the extensions as it passes

from the top of the same, so that at the next revolution of the cylinder the said roller will be guided by the rear end extension beneath the flange of the cam, and vice versa, sub- 40 stantially as set forth.

12. In a feeding mechanism for printing-presses, the combination of a paper-receptacle, an interceptor pivotally secured to said receptacle and adapted to separate the top 45 sheet of paper, means for actuating said interceptor, swinging feeding-arms mounted upon a shaft 27, journaled upon the feeding-table of the press, jaws 33 upon the extreme lower ends of the said feeding-arms, spring- 50 actuated jaws pivoted to said arms directly above said lower jaws, U-shaped frames pivoted to the upper ends of the feeding-arms, a rod mounted above the shaft 27 to limit the movement of said arms, a link-rod 35, con- 55 necting the U-shaped arms with the spring-actuated jaws, so that the latter may be operated by the frame, a bell-crank lever secured to the end of the shaft 27, a bar 45, connected with the bell-crank lever and suitably 60 guided upon the frame of the press, a weight 38, mounted upon the arm of the bell-crank lever, and a flanged casting upon the cylinder to raise the bar 45 to operate the feeding mechanism, substantially as set forth. 65

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

FRED HENRY VAN LOOZEN.

Witnesses:

JOHN REUBELT,

CONTE VAN LOOZEN.