

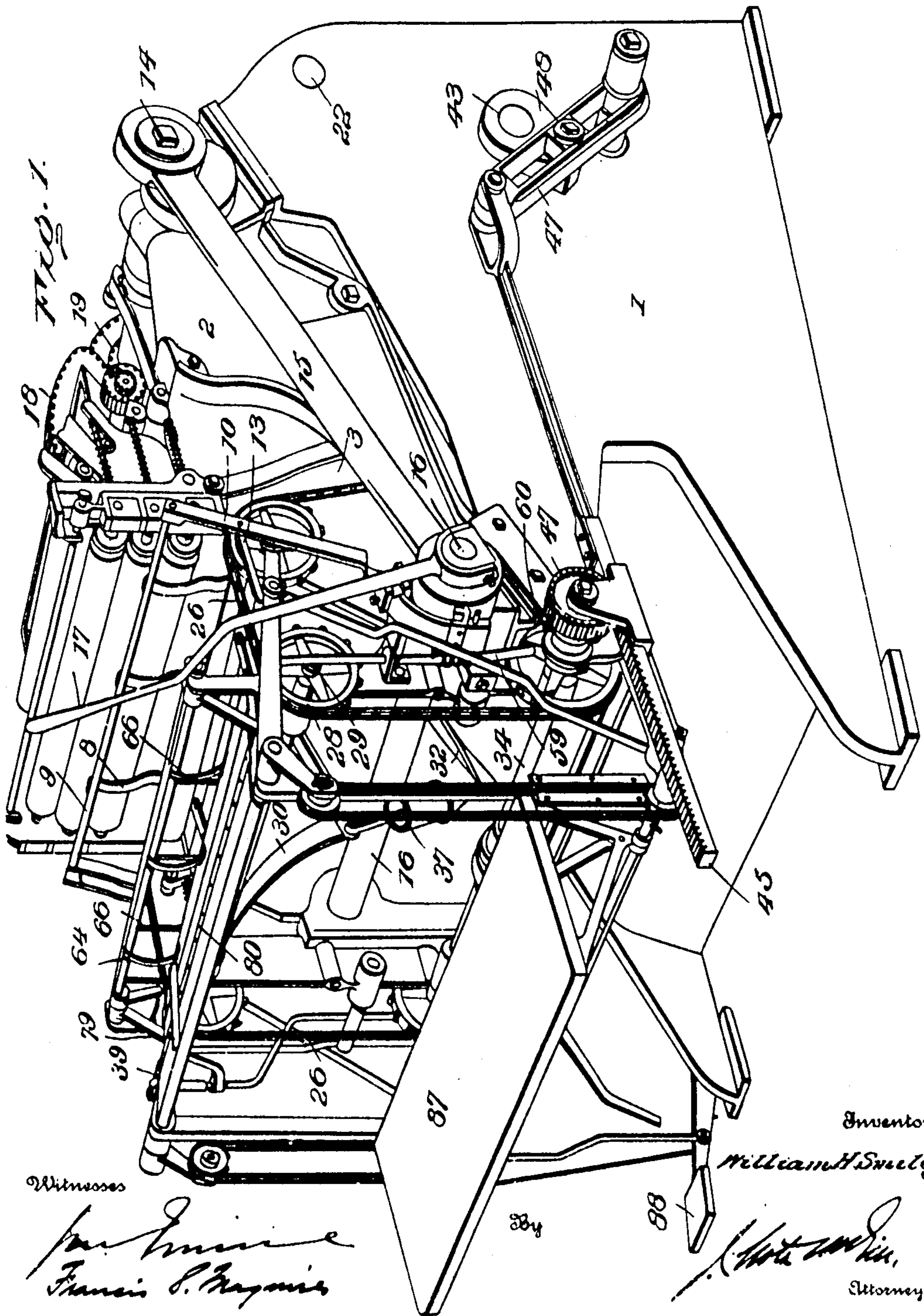
No. 847,379.

PATENTED MAR. 19, 1907.

W. H. SMILEY.
PRINTING PRESS.

APPLICATION FILED MAR. 7, 1906.

7 SHEETS—SHEET 1.



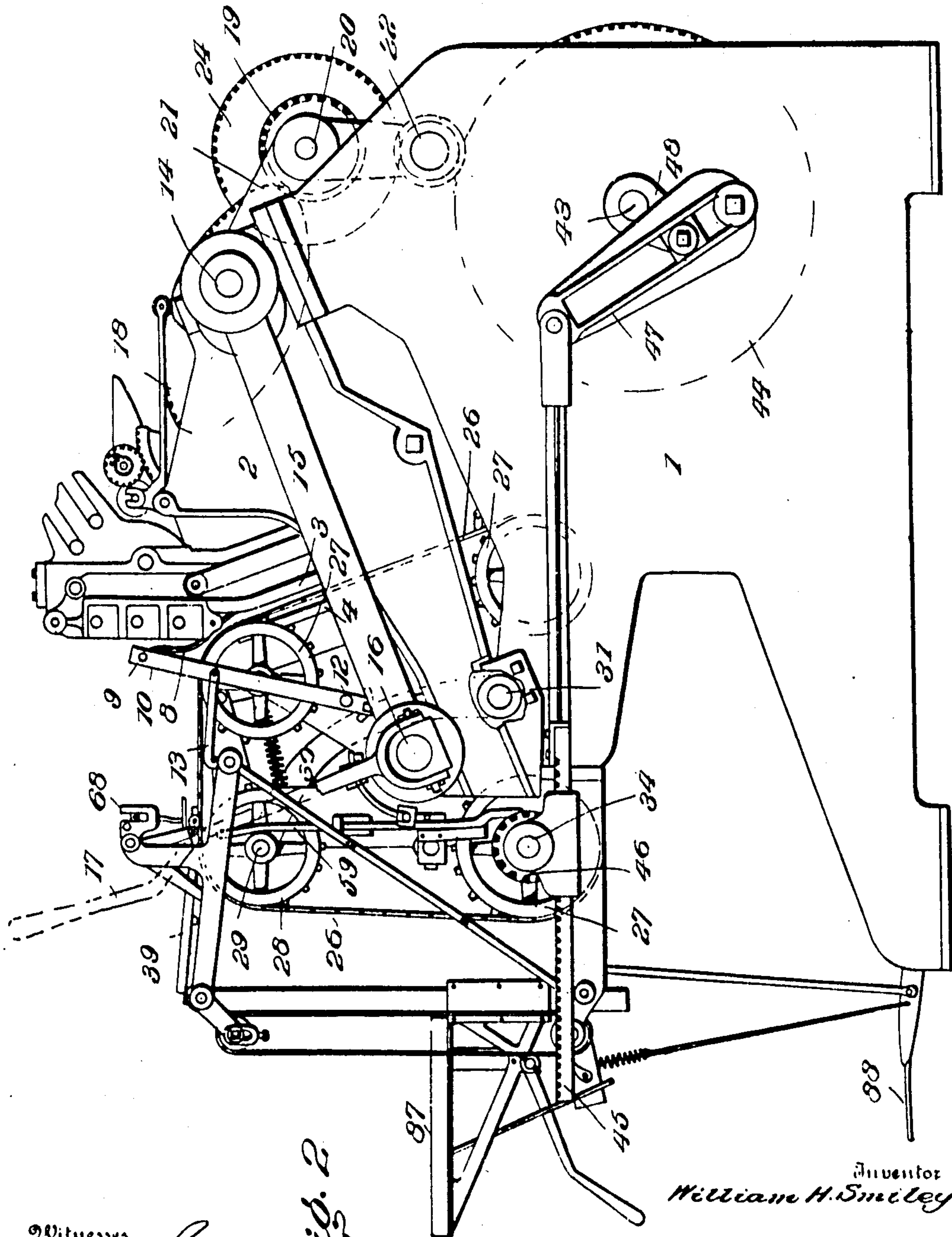
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7 SHEETS—SHEET 2.



Witnesses

Francis S. Higgins
Francis S. Higgins

Fig. 2

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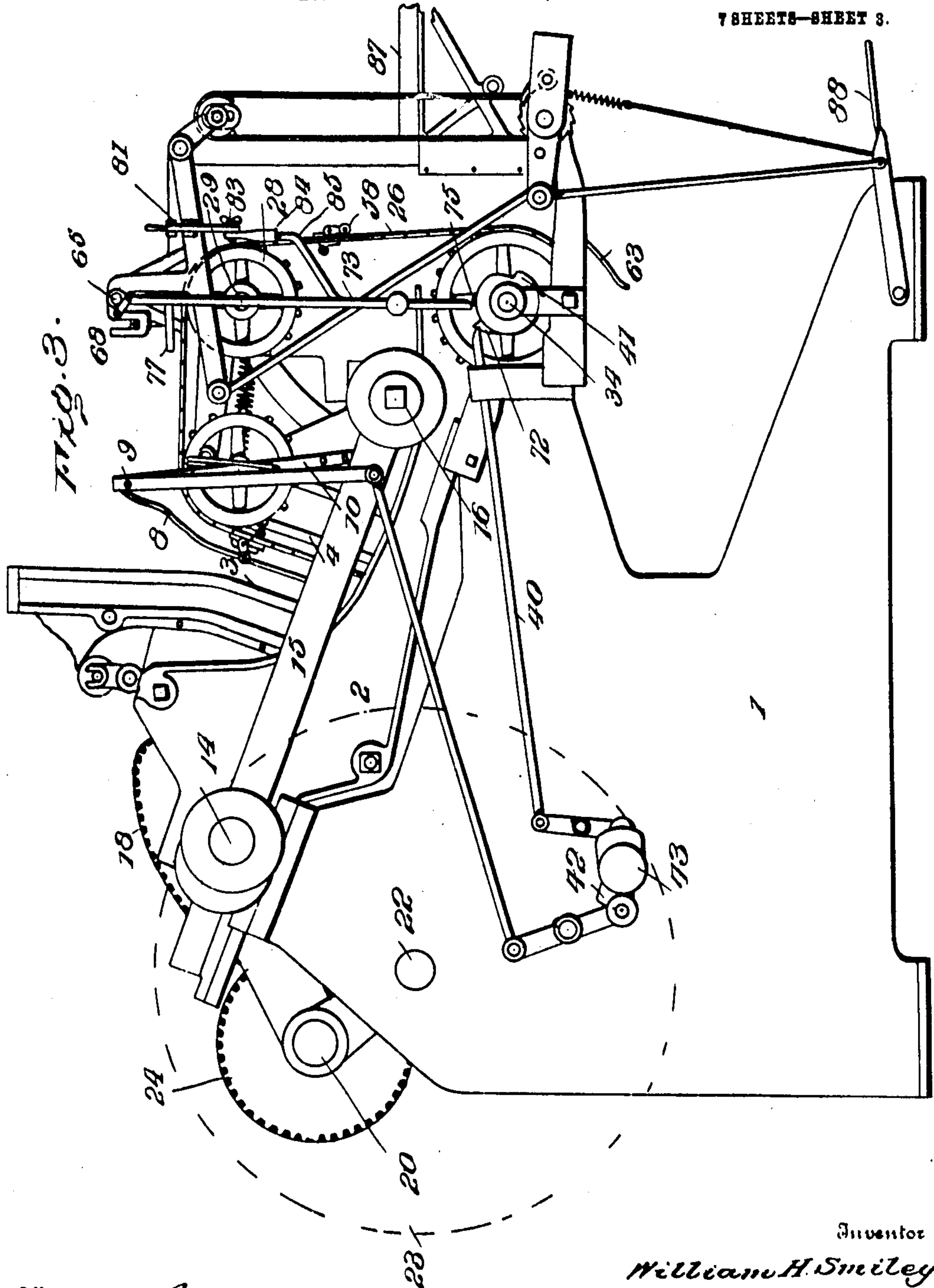
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7 SHEETS—SHEET 3.



Witnesses

per Francis S. Chagnier
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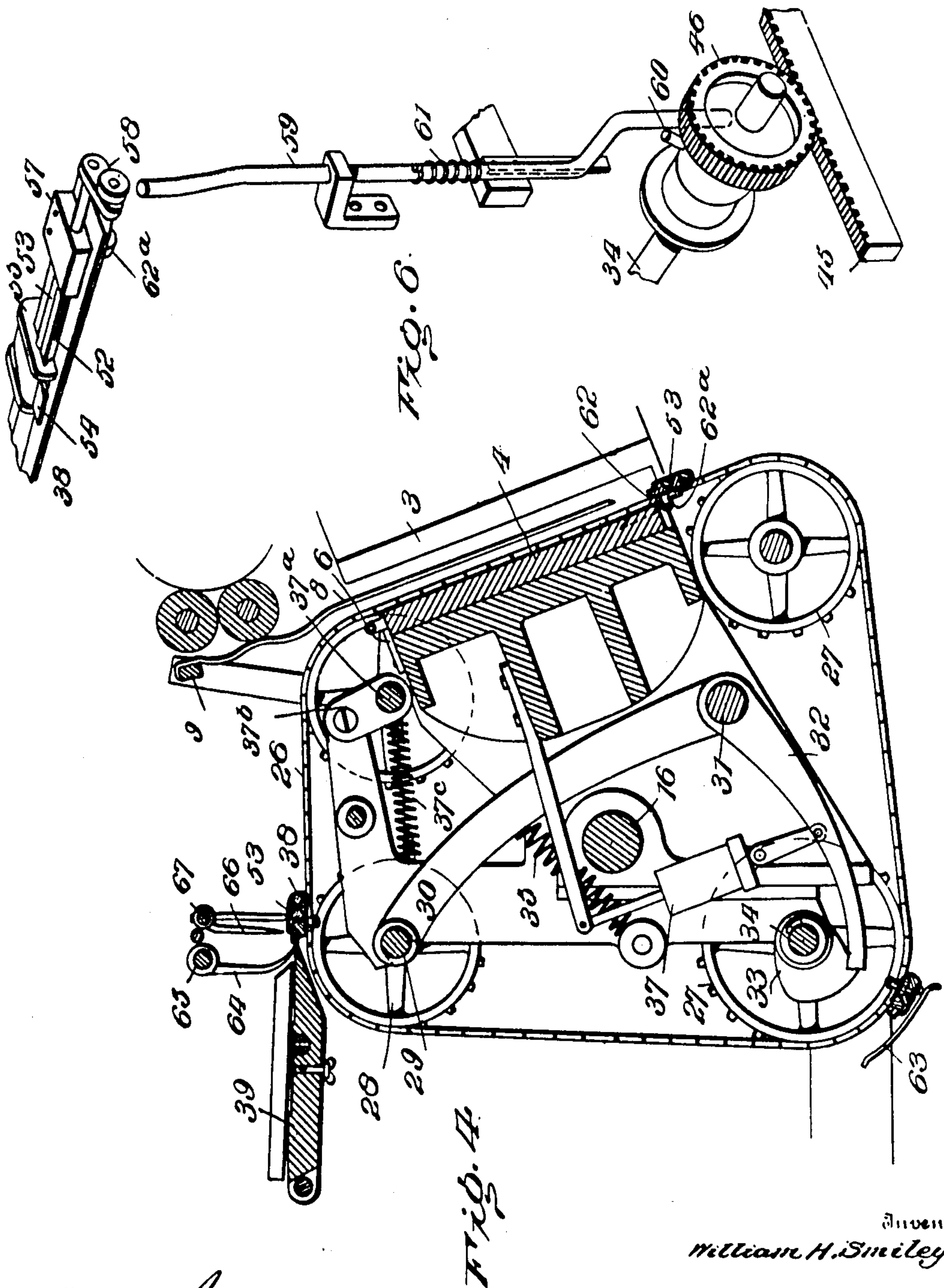
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7 SHEETS—SHEET 4.



Witnesses

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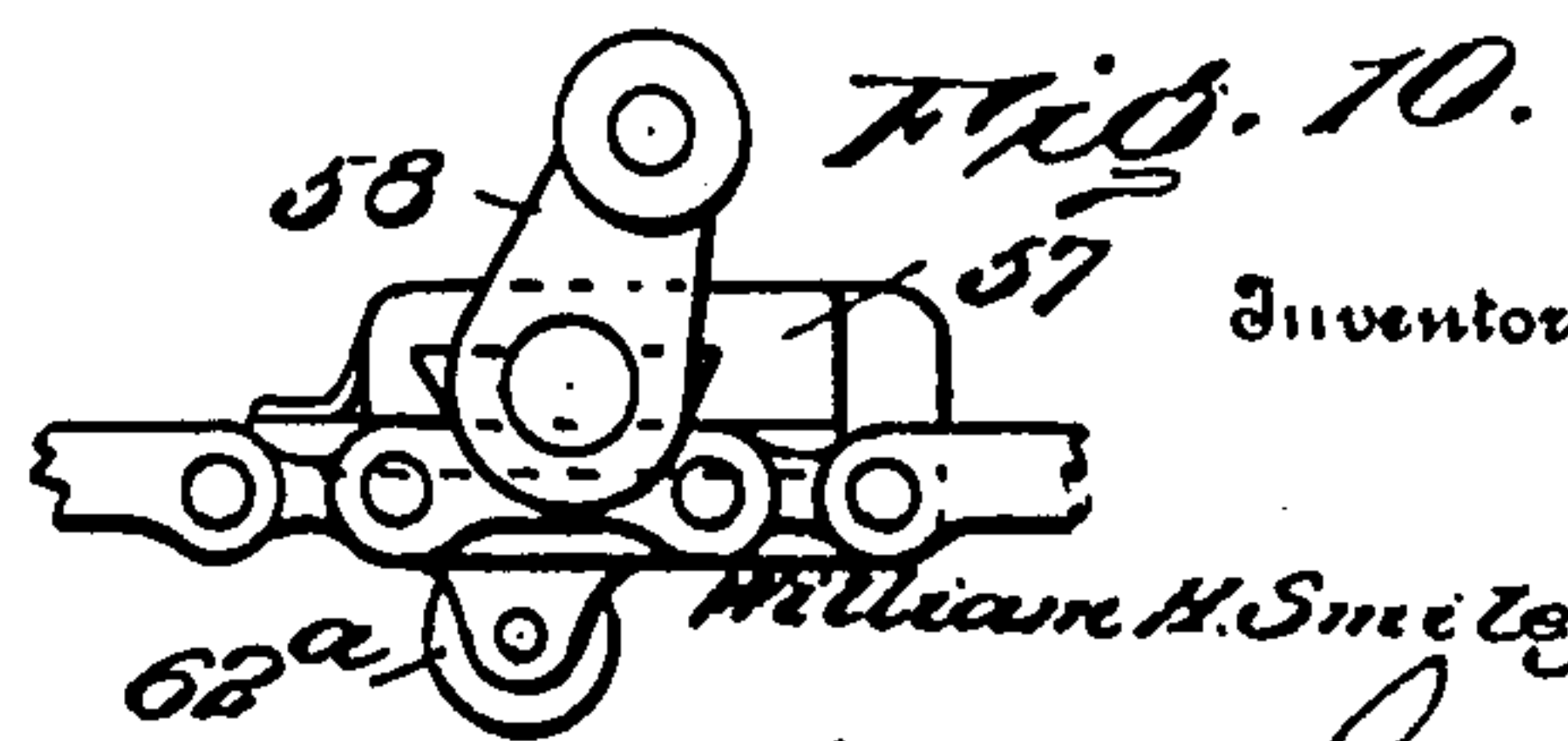
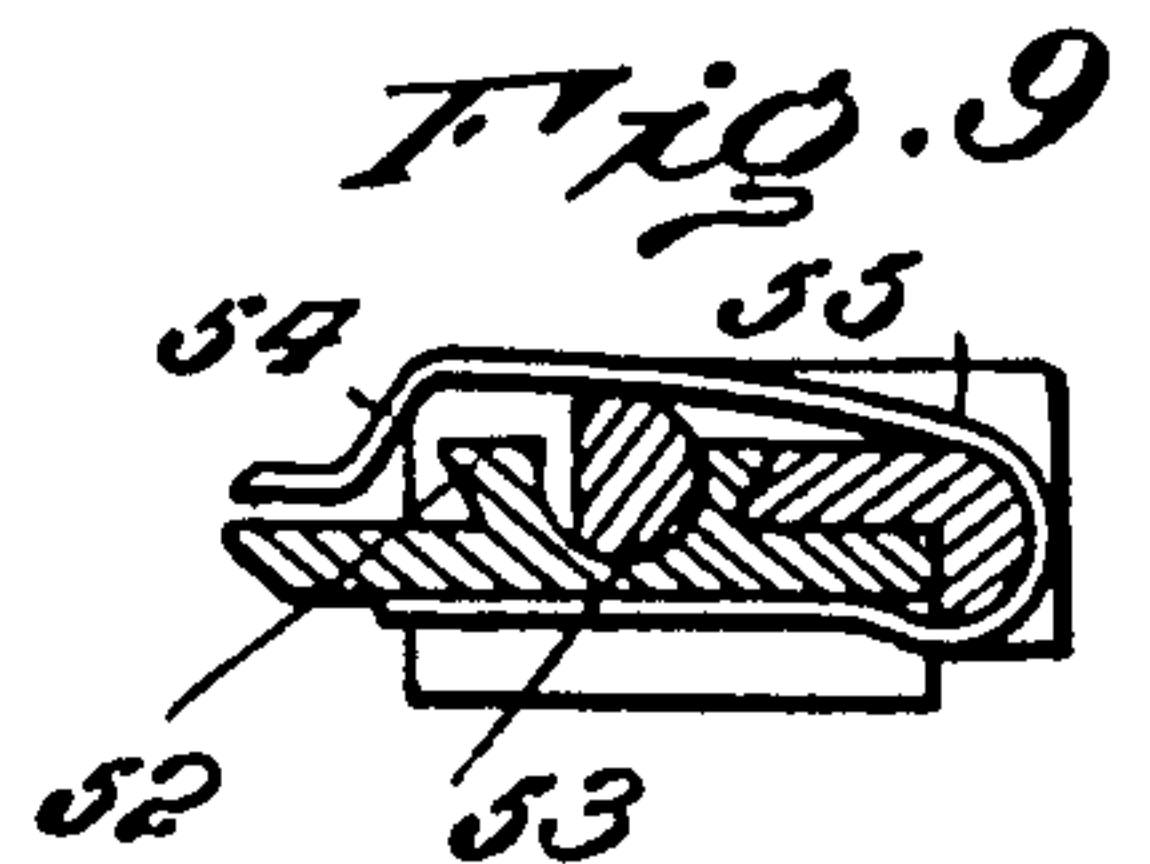
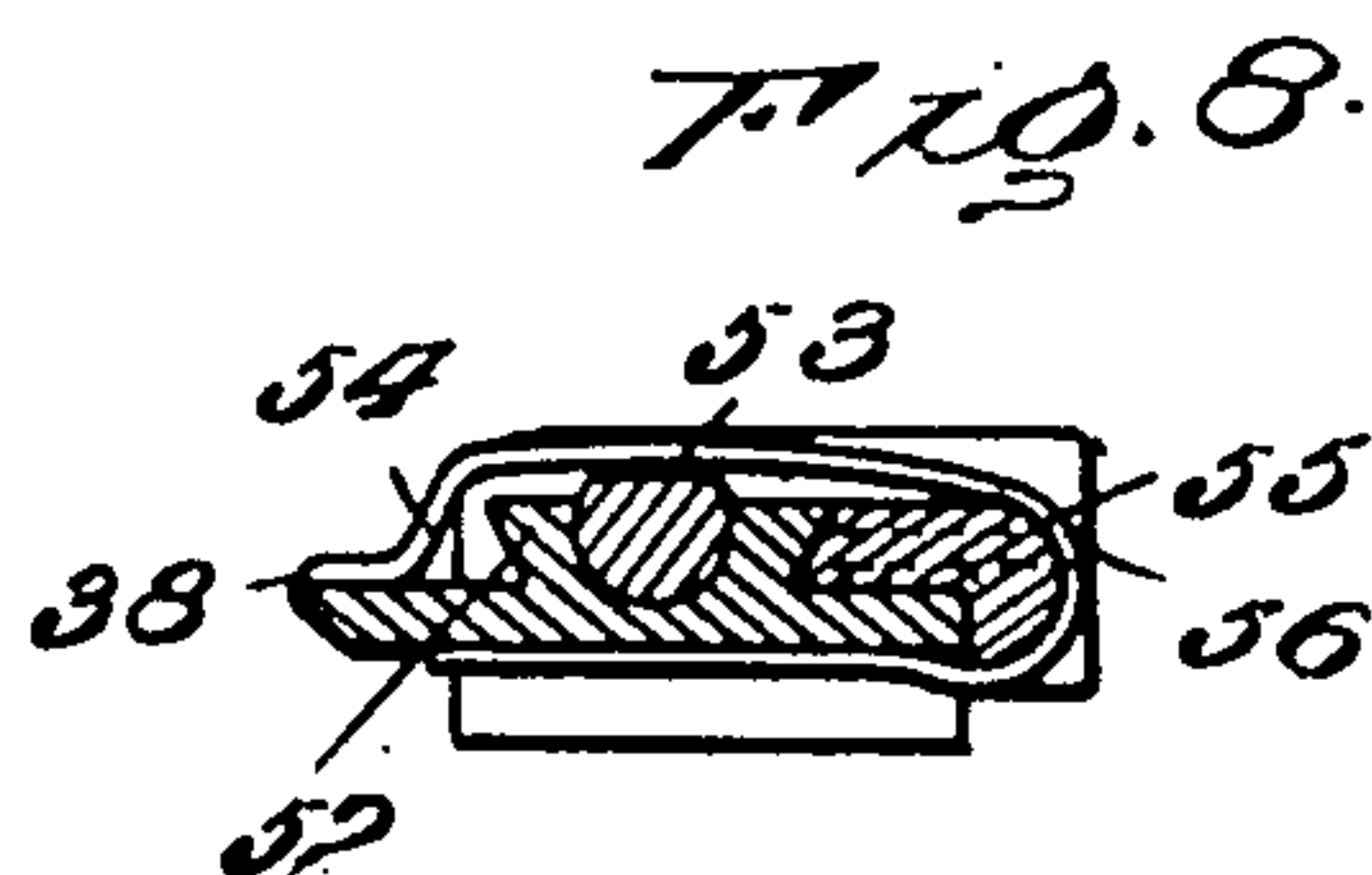
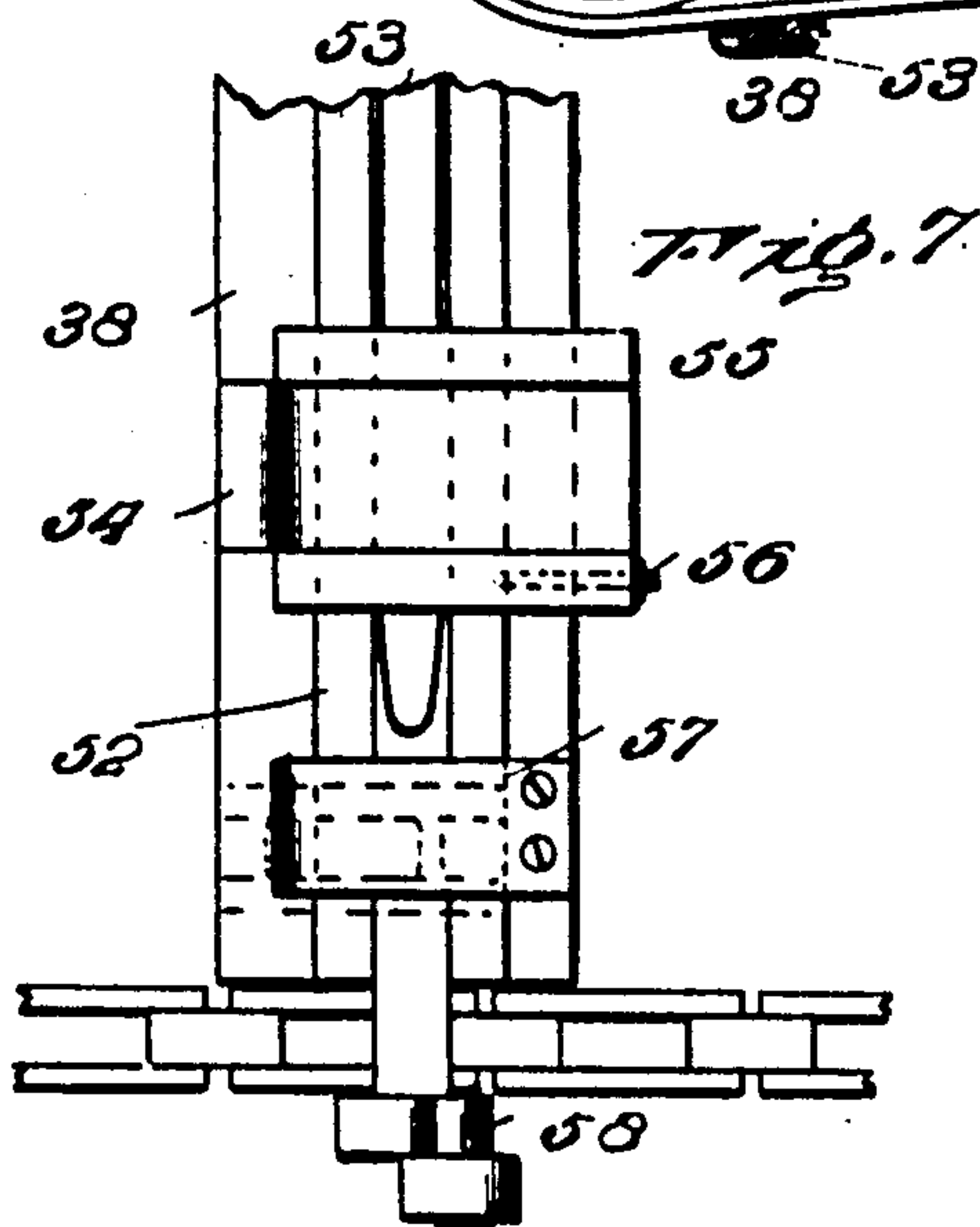
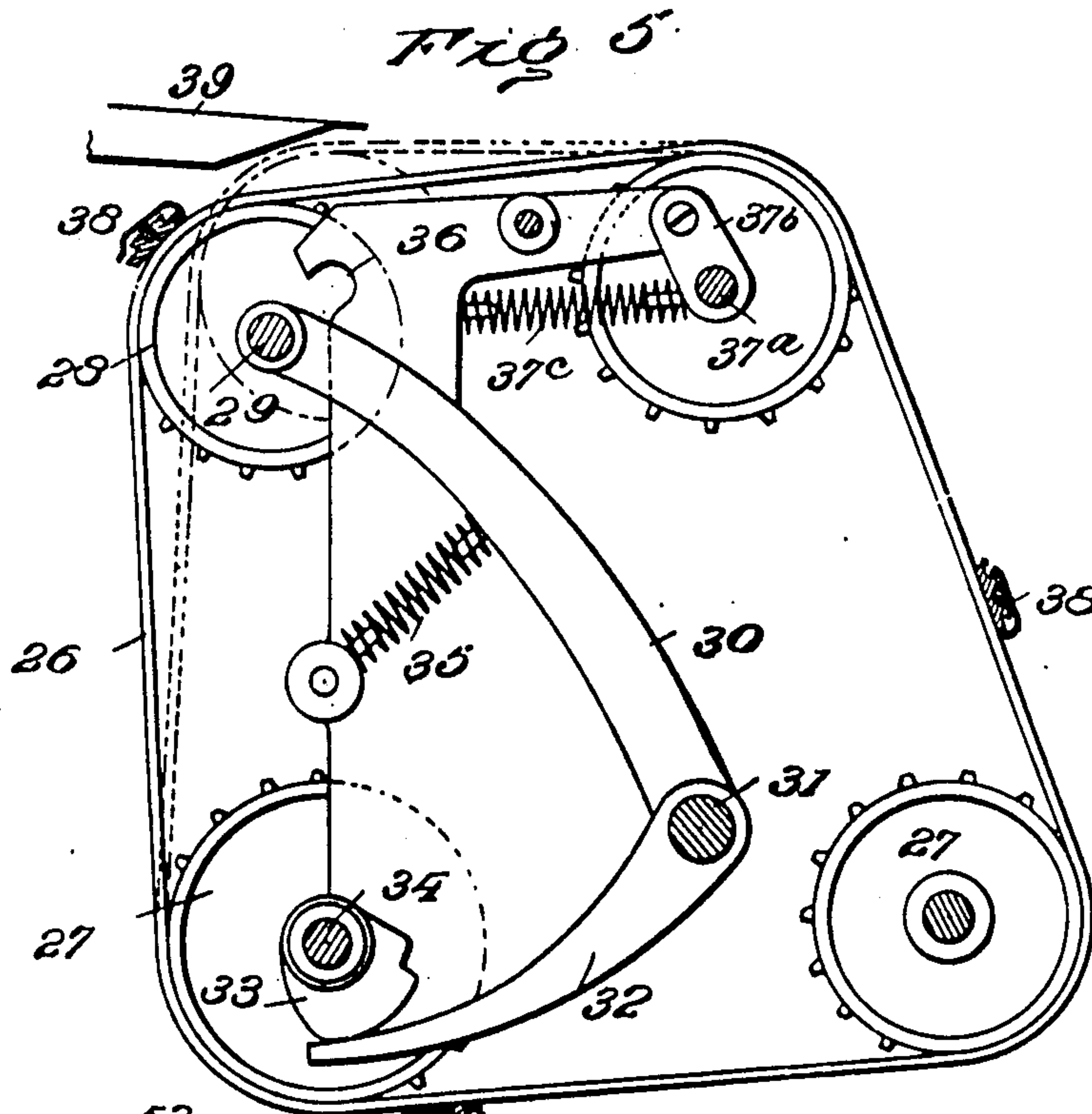
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7 SHEETS-SHEET 5.



Witnesses

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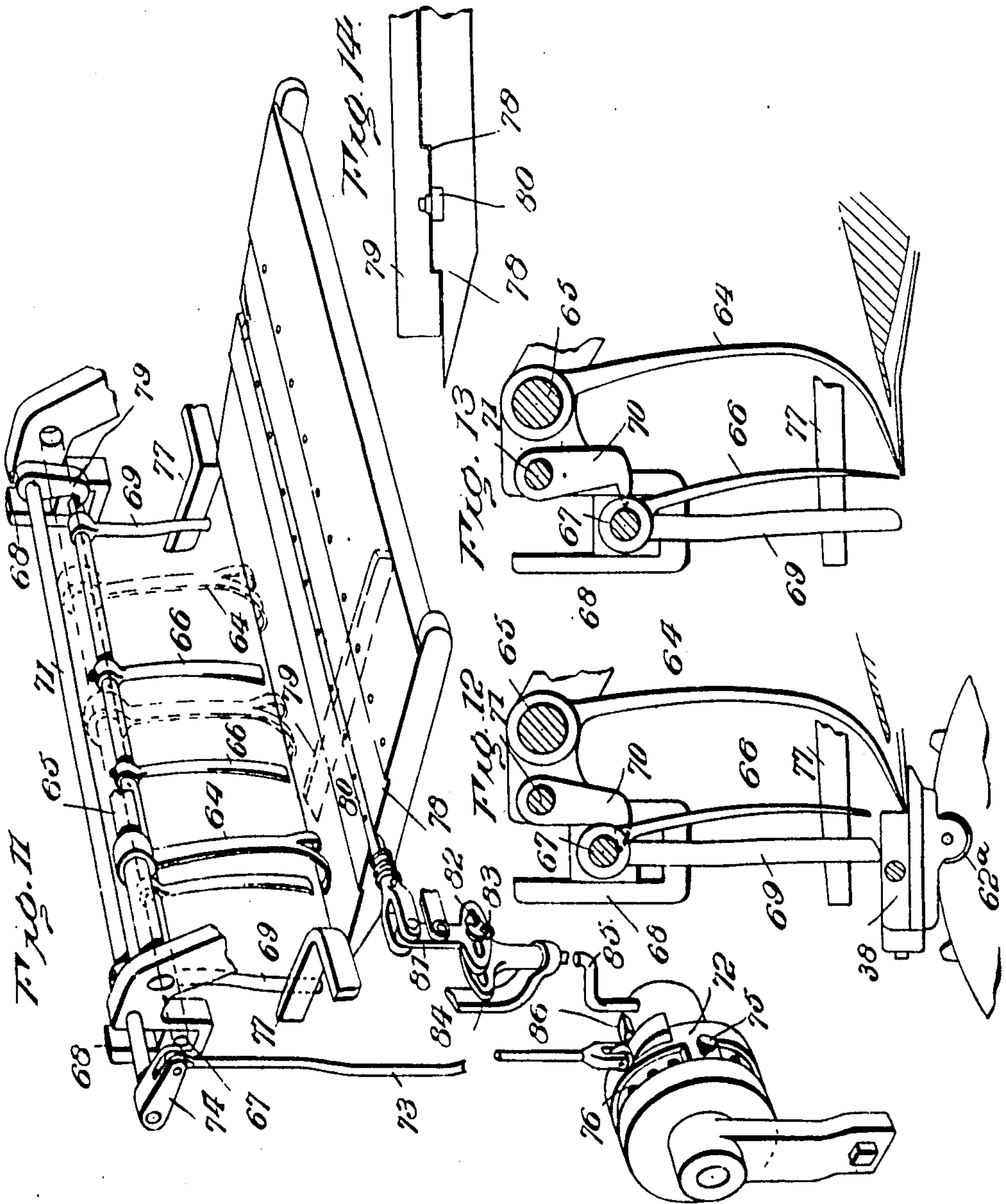
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APPLICATION FILED MAR. 7, 1905.

7 SHEETS—SHEET 6.



Witnesses

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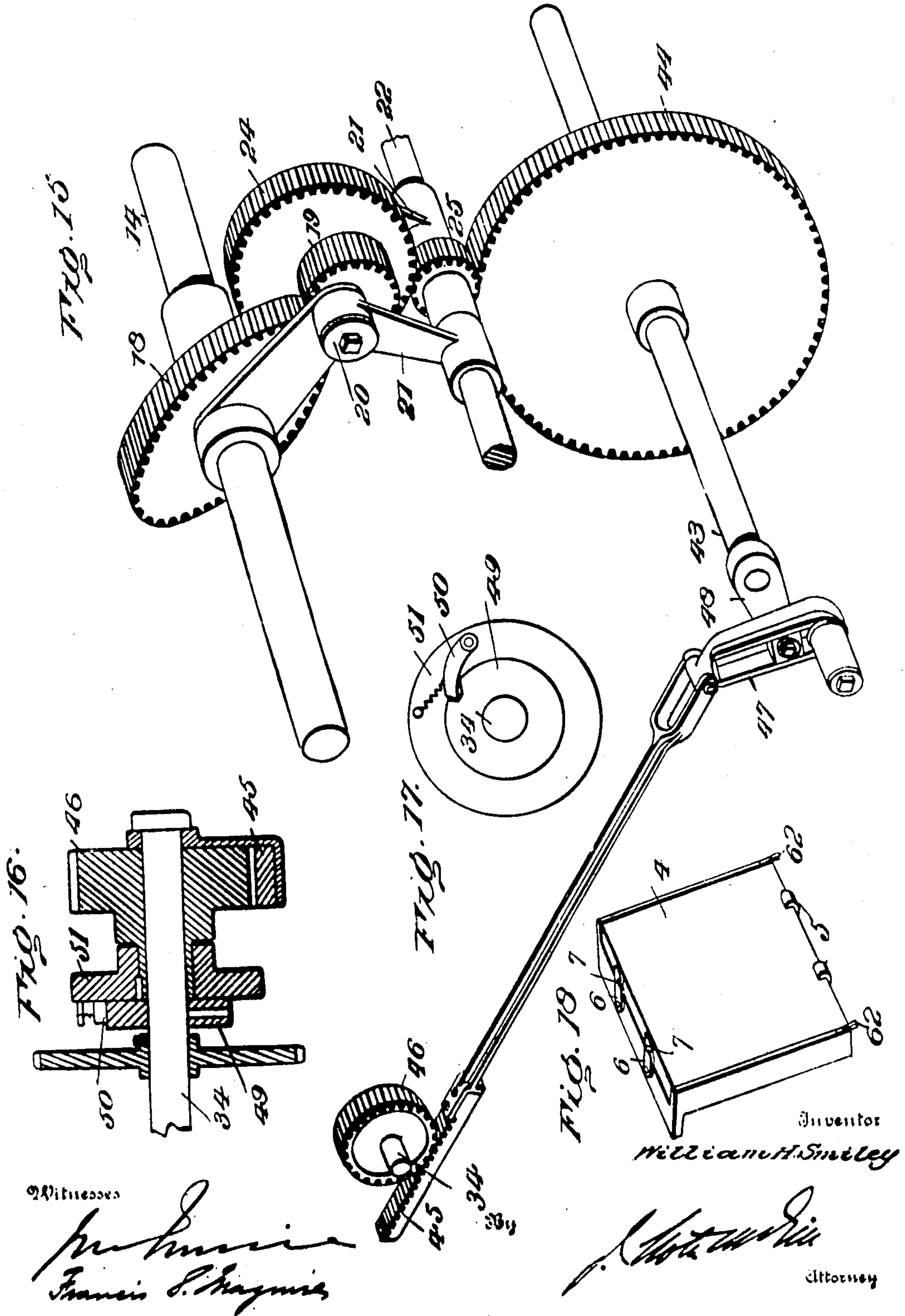
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PRINTING PRESS.

APPLICATION FILED MAR. 7, 1905.

7 SHEETS—SHEET 7.



UNITED STATES PATENT OFFICE.

WILLIAM H. SMILEY, OF NILES, OHIO.

PRINTING-PRESS.

No. 847,379.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed March 7, 1905. Serial No. 248,821.

To all whom it may concern:

Be it known that I, WILLIAM H. SMILEY, of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Printing-Presses; 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:

This invention relates to that class of printing-presses having means for conveying the stock therethrough and effecting a perfect register between the stock and the conveying means before the latter takes hold; the press embraced by Letters Patent of the United States, No. 778,338, issued to me on the 27th of December, 1904, being an exemplification of that type.

The objects of the present invention are, first, to provide improved means for effecting the register between the stock and the grippers before the latter take hold; secondly, to provide for automatically removing the stop-gages as the stock is taken up by the grippers; thirdly, to provide a new form of gripper-bars and means for operating and closing the grippers; fourthly, improved means for overcoming friction between the stock and the feed-table, so as to permit the former to be readily moved to position; fifthly, to generally improve the construction and promote the efficiency of this style of printing-press.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of a press embodying my improvements. Fig. 2 is a side elevation. Fig. 3 is a similar view from the opposite side of the press. Fig. 4 is an enlarged side view, with parts in section, showing a gripper-bar when moved to register. Fig. 5 is a view of the same parts with one set of sprocket-wheels lowered to allow the approaching gripper-bar to clear the feed-table, the other position of such wheels being indicated in dotted lines. Fig. 6 shows in perspective the means for tripping the grippers. Fig. 7 is a plan view, with parts broken away, of one of the gripper-bars and chain. Figs. 8 and 9 are cross-sectional views of a gripper-bar, the gripper being closed in the former and open in the latter. Fig. 10 is an end elevation of the same. Fig. 11 shows in

perspective the feed-table, the stops, and actuating means therefor. Figs. 12 and 13 are side views, partly in section, showing the stop-gages in different positions. Fig. 14 is an enlarged sectional view of the feed-table. Fig. 15 shows in perspective the press-actuating mechanism. Fig. 16 is a transverse sectional view of the mechanism on the chain-shaft, by which power is communicated thereto. Fig. 17 is a detail thereof. Fig. 18 is a view of the platen removed.

The press to which the present improvements are applicable embodies an endless conveyer traveling in one direction and carrying grippers, the conveyer being temporarily arrested to allow a perfect register to be effected between the stock and the grippers, the stock being moved to register before the grippers close thereon.

In my before-noted patent the feed-table was shown as pivoted to permit the grippers to pass forwardly thereof and then upon a slight retrograde movement to register therewith, the table being by that time in its lowered normal position. By my present improvements the feed-table remains stationary; but the grippers are permitted to clear the latter by the temporary lowering of one set of sprocket-wheels, by which the conveyer-chains are carried. As soon as the grippers are forward of the feed-table their travel is arrested and they are then given a slight retrograde movement to bring the grippers into register with the stock positioned on the feed-table. At the same time depending stop-gages are automatically elevated, so as to permit of the free passage of the stock.

According to my present improvements I employ means for insuring a dwell at the limits of travel of the type-bed and which provide for the rapid movements thereof between such dwells.

Referring to the drawings, 1 designates the stationary frame, and 2 the carrier-casting mounted on inclined guideways thereof, so as to be capable of being slid back and forth, such casting carrying at its lower inner end the type-bed 3, which moves toward and away from platen 4. The latter consists of a rectangular frame resting on stops 5 and removably secured to its bed by pivoted hooks 6, engaging posts 7 of the platen-frame. (See Fig. 18.) By this means I am enabled to readily remove the platen in the preparation of the "make-ready." The stock-holding

fingers 8, extending over the face of the platen, are mounted on a rocking rod 9, supported by arms 10, pivoted at 12 and held in their normal positions by a latch 13. (See Fig. 2.) By pivoting these arms the holding-fingers and their supporting-rod may be readily moved out of the way to permit of the removal and insertion of the platen. The rod 9 may be actuated by any suitable means.

The type-bed casting 2 has a cross-shaft 14, on the ends of which are fitted links 15, which at their lower forward ends engage cams mounted on a shaft 16, supported by frame 1. Through this connection the type-bed is given its reciprocation by the revolution of its shaft 14. To one of these cams the throw-off lever 17 is connected. (See Figs. 1 and 2.) The reciprocation of carrier 2 is effected by an elliptical gear-wheel 18, meshing with an eccentric gear-pinion 19, whose short shaft 20 is supported by cranked arms 21, (see Fig. 15,) secured at their upper ends to shaft 14 and at their lower ends loose on the main operating-shaft 22, which shaft carries the fly-wheel 23. (Shown in dotted lines, Fig. 3.) On the short shaft 20 is a gear-wheel 24, which meshes with a pinion 25, fast on shaft 22. (See Fig. 15.) By means of the elliptical gear-wheel and the eccentrically-mounted gear-pinion I am enabled to insure a firm imprint of the type and secure great force on the impression, and thereby squarely emboss the type on the stock, obtaining also a dwell in the movement not only at the time of the imprint, but also when the type-bed is at the limit of its outward movement, during which latter period the inking of the type is effected. A further advantage resides in the fact that by means of this construction an accelerated motion is obtained during the extremes of movement, thereby enabling me to secure rapid operation of the press, the time consumed in the dwells being more than compensated by the rapidity of motions imparted to the type-bed; but this feature of my invention is embraced by an application for patent, Serial No. 290,394, filed December 5, 1905.

26 designates two sprocket-chains engaging at suitable points several sets of sprocket-wheels 27. (See Figs. 1, 4, and 5.) The upper outermost set (designated 28) is mounted on a shaft 29, supported by two arms 30, fast on a rock-shaft 31, said rock-shaft carrying a central arm 32, which is engaged by cam 33, loosely locked to shaft 34, (see Fig. 4,) whereon the lower outermost set of sprocket-wheels 27 is also mounted. Periodically cam 33 depresses arm 32, so as to rock shaft 31 sufficiently to lower the shaft 29 and move the sprocket-wheels thereon a short distance from their normal position, as shown in Fig. 5. When the proud portion of cam 33 has passed from arm 32, a spring or springs 35 will instantly return the parts to their nor-

mal positions, replacing shaft 29 in the grooves 36 of a stationary subframe, all jar being obviated by a dash-pot 37, secured to arm 32. (See Fig. 4.) For the purpose of taking up slack in the chains, especially during the shifting of shaft 29, the shaft 37^a of the upper innermost set of sprocket-wheels is yieldingly supported, being mounted in arms 37^b, pivoted to the frame, and held in its normal positions by spring 37^c. These chains 26 carry gripper-bars 38, which as they rise on the return or outermost flight of the chains and begin to travel forward pass beneath a stationary feed-table 39. As shown in Fig. 4, the chains normally occupy a position in close relation to the forward edge of the feed-table; but when the shaft 29 is lowered from its normal position sufficient space is provided to permit the gripper-bars to clear the edge of the feed-table. By the time a gripper-bar is forward of such feed-table shaft 29 is returned to its normal position with the gripper-bar immediately in advance of the edge of the table. Thereupon shaft 34 is given a slight reverse motion, so as to impart a retrograde movement to chains 26 sufficiently to bring the contiguous gripper-bar into register with the stock. This movement is effected by a rod 40 (see Fig. 3) engaging the shoulder of a cam 41, fast on shaft 34, said rod being actuated by a cam 42 on a shaft 43. This latter shaft carries a large gear-wheel 44, which meshes with pinion 25 of the main shaft 22. (See Fig. 15.) The cam 33 is formed with a shoulder with which the end of arm 32 engages as the proud portion of the cam clears such arm, said cam having a slight axial play or loose movement to permit of the retrograde movement and at the same time avoid all jar or strain. (See Fig. 4.) In other words, the key of the shaft fits in a way or groove of greater length than the width of the key, so that the cam will momentarily remain idle while the shaft is being rotated in a reverse direction, the cam being caused to again travel with the shaft when the key again engages one of the ends of the way.

Motion is transmitted to the conveyer-chains by the reciprocation of a rack-bar 45, engaging a gear-pinion 46, loosely mounted on shaft 34 and arranged to lock therewith and effect the rotation thereof when the rack-bar is moved in one direction and to permit of the return of such rack-bar without affecting such shaft. The rack-bar 45 is connected by a rod to a longitudinally-slotted link 47, pivoted at its lower end to frame 1, the slot of said link receiving the pin of a crank 48, fast on shaft 43. The revolution of this shaft effects the reciprocation of the rack-bar, and as the crank reaches the lower limit of its travel, with its pin immediately above and close to the pivoted end of the link and starts on its upstroke, an immediate shifting of such link

is effected, thereby withdrawing the rack-bar and turning gear-pinion 46 without operating shaft 34. It is at this time that the retrograde movement is imparted to the conveyer-chains. It is manifest that any suitable means may be employed for forming this clutch connection between gear-pinion 46 and shaft 34; but I have shown for this purpose, Figs. 16 and 17, a notched wheel 49, fast on shaft 34, and a spring-pressed pawl 50, mounted on a disk 51, keyed to the hub of gear-pinion 46, the latter being loose on said shaft.

Each gripper-bar 38 has along its upper surface a longitudinal dovetailed rib 52, wherein is formed a nearly-circular groove to accommodate a long rod 53 of approximately corresponding formation in cross-section, such rod being shown as projecting slightly beyond the upper face of the rib. (See Figs. 7 to 10.) This rod has a flattened surface which is normally faced upward, so that when turned axially its side will engage and elevate the spring-grippers 54, and yet when given a reverse motion will allow such grippers to return to their normal closed positions. Each gripper is preferably formed of a spring-plate secured at one end and free at its other, which latter is bent to conform to the top surface of the gripper-bars, against which it is designed to hold the stock. Each gripper is mounted in a block 55, which is held by screws 56, by loosening which the grippers may be adjusted to any desired point. The rod 53 has its bearings in blocks 57 at the ends of plates 38.

As each gripper-bar is brought into position in advance of the edge of the feed-table its several grippers are open, the actuating-rod 53 thereof having previously been given a quarter-turn at the time of the delivery of the stock. As the gripper-bar is moved to register the rod 53 is returned to its normal position, allowing the grippers to close down on and hold the projecting edge of the stock. For this purpose a small crank-arm 58 is mounted on one end of each rod 53, and just at the time when the grippers are in position to engage the stock a vertically-disposed rod 59 is forced upwardly, so as to strike the crank-arm 58, and thereby turn the gripper-actuating rod 53 to allow the grippers to close. This rod 59 (see Fig. 6) is acted on by a lug 60, extending from the hub of gear-pinion 46. Inasmuch as lug 60 must contact with rod 59 when gear-pinion 46 is being moved to actuate shaft 34, at which time no gripper-bar is in position to be acted upon by rod 59, the latter is slightly cranked at its lower end to permit of its being turned axially by lug 60, so as to allow the latter to pass, such rod resuming its normal position under the action of a spring 61. When gear-pinion 46 is given its reverse motion, lug 60, which is then immediately below the end of rod 59, upon

engaging with the end of such rod will elevate the latter sufficiently to cause it to contact with crank-arm 58 and effect the turning of the gripper-actuating rod 53, so as to allow the grippers to close down on the stock, the gripper-bar having by that time been moved to register with such stock, since before the rod 59 is so moved the necessary retrograde movement has been imparted to the conveyer-chains.

It will be seen that the lug 60 will raise rod 59 only when pinion 46 is moved in one direction and will move the rod to one side when the pinion is turned in the opposite direction.

As pointed out in my before-noted patent, the sheet is carried forward by the grippers down over platen 4, and as the next succeeding gripper-bar is moved to register the former is moved to register with stops 62 at the lower end of the platen. Thus not only is the stock moved to register by the grippers before being caught by the latter, but it is by the same retrograde movement of the chains also moved to perfect register on the platen while still retained by the grippers. In traveling over the platen the gripper-bars are held out of engagement therewith by small rollers 62* on the under sides of blocks 57, the grippers being free to move to register with stops 62 as soon as such rollers pass off the platen. As a gripper leaves the platen and approaches the return flight the stock may be released by any suitable means for effecting the quarter-turn of the gripper-actuating rod 53. For this purpose I have shown a switch 63. (See Fig. 4.) Upon thus opening the grippers the stock will fall onto a suitable receiving board or table. (Not shown.) Thus as the grippers travel upwardly toward the feed-table they are held open ready to receive stock, their closing being automatically effected by rod 59, as before noted.

64 designates stationary guides for holding the stock closely to its proper horizontal position to be engaged by the grippers, such guides being adjustable transversely of the table on a stationary cross-rod 65. (See Fig. 11.) Immediately adjacent these stationary guides is a series of stop-gages 66, which normally rest on or in close juxtaposition to the delivery edge of the feed-table, so as to arrest the stock as it is placed in position on the latter. These stop-gages are mounted on a cross-rod 67, movable vertically in bearings 68. As a gripper-bar is elevated into position immediately forward of the feed-table the blocks 57 thereon engage fingers 69, depending from rod 67, thereby elevating the latter and raising the gages 66 out of the way, permitting the stock to be gripped. (See Fig. 12.) As the rod 67 is elevated it is caught by hooks 70, depending from a rock-shaft 71, and by such hooks held

out of the way until the stock has cleared the feed-table. Thereupon a cam 72 on shaft 34 will engage the roller in the lower end of a rod 73, which is connected at its upper end to a crank-arm 74 on such rock-shaft and effect the turning of the latter sufficiently to disengage hooks 70 from rod 67, permitting the latter to lower and place the stop-gages 66 in their normal position. This cam 72 may be adjusted axially of shaft 34, according to the size of the stock being printed, so as to regulate the time at which the stop-gages will be lowered. For this purpose I have shown the cam equipped with a pin 75 for entering any one of a series of recesses 76. (See Fig. 11.) In this way the gages may be dropped approximately at the close of the passage of the stock thereunder, whether the same be long or short, and the feeding may be continued without loss of time. The two fingers 69 are guided in their up and down movements by side pieces 77.

The feed-table 39 is preferably stepped—that is to say, is formed with graduated cut-outs 78, with which conform the side-register plate 79. (See Figs. 11 and 14.) This plate 79 is adjustably mounted on a bar 80, which is periodically moved longitudinally, so as to bring the side register 79 into engagement with the edge of the stock. By reason of the stepped arrangement the stock when on the table will rest against the edge of the wall of each cut-out, so as to prevent it from adhering closely to the feed-table, thereby avoiding friction and insuring engagement therewith of the side plate 79, preventing the edge of the stock from getting in under the edge of the plate. The bar 80 is flush with the top surface of the table, being fitted in a groove thereof. At one end it is connected to a short lever 81, having a transverse slot 82 in its lower end, which latter is secured by a thumb-screw 83 to the slotted end 84 of a vertically-movable rod 85, which is periodically raised by a cam 86 on shaft 34. When it is desired to effect the side register from the right-hand side of the stock, plate 79 is transferred and the connection between the slotted ends of lever 81 and rod 85 is shifted to the other side of the center of the slotted end of the former, so that each time rod 85 is acted on by cam 86 bar 80 will be pulled to the left instead of being pushed to the right, according to the arrangement shown in Fig. 11.

I have not described the means for actuating the ink-fountain or for inking the type, since it is manifest that any suitable arrangement may be employed for this purpose. I have indicated in Figs. 1, 2, and 3 a stock-supporting table 87, which may be periodically elevated by foot-treadle 88; but as this forms no part of my present invention further reference thereto is unnecessary.

In operation the stock is placed on the feed-table either by hand or by machinery,

being retained by fingers 64, and rests against the removable gages 66, the side register being effected by the shifting of bar 80. As a gripper-bar comes in front of the table the conveyer-chains are given their slight retrograde movement, effecting a perfect register with the stock before gripping it. Thereupon the grippers close down upon and hold the stock by the rod 59 striking the crank-arm 58 of the gripper-actuating rod. As the gripper came into place the gages 66 were elevated out of the way by fingers 69, being engaged by the bearing-blocks 57. By the time the grippers have engaged the stock the rack-bar 45 is again starting on its forward stroke, causing pinion 46 to effect the rotation of shaft 34. As the rollers 62 clear the platen the next following gripper-bar is brought to register with a second sheet on the feed-table, and at the same time the first gripper-bar is moved to register with the stops of the platen, and when the conveyer-chains again start forward the grippers carry the stock until they are opened by the action of switch 63 on crank-arm 58, remaining in that position until again brought into register with another sheet. In each operation the type make a firm imprint upon the stock, owing to the dwell allowed in the movement of the type-bed, while the return and forward movements of such bed are at a comparatively rapid speed because of the employment of the elliptical and eccentric gears.

I claim as my invention—

1. In a printing-press, in combination, a feed-table, grippers, a conveyer therefor movable beneath and forward of said feed-table, and means for temporarily shifting the conveyer to allow the grippers to clear said feed-table as they pass forward thereof.

2. In a printing-press, in combination, a feed-table, grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, and means for shifting the position of one set of said wheels to lower said chains as a gripper passes beneath and forward of the feed-table.

3. In a printing-press, in combination, a feed-table, grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, means for shifting the position of the shaft of one set of sprocket-wheels, and a flexible support for the shaft of another set of sprocket-wheels for taking up any slack in the chains.

4. The combination with the feed-table, and a stationary frame, of the grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, means connected to the shaft of one set of sprocket-wheels for shifting the position of the latter, pivoted arms depending from said frame supporting the shaft of another set of sprocket-wheels, and springs acting on such latter shaft, as set forth.

5. The combination with the feed-table, of the grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, a rock-shaft, arms secured thereto supporting the shaft of one set of sprocket-wheels, means for actuating the shaft of another set of sprocket-wheels for imparting motion to the conveyer-chains, a cam carried by such shaft, and an arm on such rock-shaft with which said cam is designed to engage for shifting the position of the shaft supported by the arms of said rock-shaft, as set forth.

6. The combination with the feed-table, of the grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, a rock-shaft, arms secured thereto supporting the shaft of one set of sprocket-wheels, springs bearing against said arms, means mounted on the shaft of another set of sprocket-wheels comprising a gear-wheel designed to interlock with and effect the movement of such shaft when moved in one direction and a reciprocating rack-bar engaging said gear-wheel, a cam carried by said latter shaft, and an arm on said rock-shaft with which said cam engages.

7. The combination with the feed-table, of the grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, means for actuating the shaft of one set of sprocket-wheels for imparting motion to the conveyer-chains comprising a gear-wheel and a longitudinally-reciprocating rack-bar meshing therewith, said gear-wheel operating said shaft when moved in one direction, and means for engaging such shaft for imparting a retrograde movement to said chains when such shaft is not being actuated by said gear-wheel.

8. The combination with the feed-table, of the grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, means for actuating the shaft of one set of sprocket-wheels for imparting motion to the conveyer-chains comprising a gear-wheel designed to interlock with and effect the movement of such shaft when moved in one direction, and a reciprocating rack-bar engaging said gear-wheel, a rotary shaft for actuating said rack-bar, a cam on the said sprocket-wheel shaft, and a rod actuated by said rotary shaft for engaging said cam and imparting a retrograde movement to said chains when said sprocket-wheel shaft is not being actuated by said gear-wheel.

9. The combination with the feed-table, of the grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, means for actuating the shaft of one set of sprocket-wheels for imparting motion to the conveyer-chains comprising a gear-wheel designed to interlock with and effect the movement of said shaft when moved in one direction and a reciprocating rack-bar

engaging said gear-wheels, a rock-shaft supporting the shaft of another set of sprocket-wheels, said rock-shaft having an arm, a cam on the first-mentioned sprocket-wheel shaft for engaging such arm, a second cam on such shaft, a rod for engaging such latter cam for imparting a retrograde movement to such chains, and a rotary shaft for actuating said rod and said rack-bar, as set forth.

10. In a printing-press, the combination with a feed-table, of a series of gripper-bars, conveyer-chains for the latter, means for operating such chains, means for imparting a retrograde movement thereto for effecting a register between a gripper-bar and stock on such feed-table, each gripper-bar having a series of grippers and a rod passed longitudinally of each gripper-bar beneath the grippers for effecting the opening and allowing the closing of the latter, and means for partially turning such rod to close the grippers after they have registered with the stock, as set forth.

11. In a printing-press, the combination with the feed-table, of a series of gripper-bars, conveyer-chains for the latter, means for operating such chains, means for imparting a retrograde movement thereto for effecting the register between a gripper-bar and stock on such feed-table, each gripper-bar having a series of grippers, a rod for effecting the opening and closing of such grippers, such rod having a crank-arm at one end, a vertically-movable rod for engaging such crank-arm for effecting the closing of the grippers, and means for operating such vertically-movable rod, as set forth.

12. The combination with the feed-table, of the grippers, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, means for actuating the shaft of one set of sprocket-wheels comprising a gear-wheel designed to interlock with and effect the movement of such shaft when moved in one direction and a reciprocating rack-bar engaging said gear-wheel, means engaging said shaft for imparting a retrograde movement to said chains when said gear-wheel is not acting thereon, each gripper-bar having a series of grippers and a rod for actuating the latter, a crank on one end of such rod, a vertically-movable rod for engaging such crank, and means carried by said gear-wheel for operating said vertically-movable rod, as set forth.

13. The combination with the conveyer-chains and means for operating the latter, of the gripper-bars carried by said chains, a series of grippers adjustably mounted on such bars, each gripper consisting of a spring-plate designed to be raised and lowered at one end, a rod extended longitudinally of each gripper-bar beneath the grippers, and means for turning such rod for effecting the opening and closing of the grippers.

14. The combination with the conveyer-chains and means for operating the latter, of the gripper-bars carried by said chains, having longitudinal grooves in their upper surfaces, a series of grippers consisting of spring-plates secured at one end and free at the other, rods located in said grooves, said rods when turned axially in one direction effecting the opening of said grippers and when turned in the opposite direction allowing of the closing thereof, and means for acting on said rods.

15. The combination with a printing-press having a stationary platen, of a series of gripper-bars, chains therefor, means for operating said chains, stops on said platen with which said gripper-bars are designed to register, means for imparting a retrograde movement to said chains, and rollers carried by said gripper-bars for holding the latter out of engagement with the platen in their travel thereover.

16. In a printing-press having a feed-table, a series of gripper-bars, conveyers therefor, a series of stop-gages suspended vertically above said table at the delivery end thereof, and means designed to be engaged by said gripper-bars for moving said gages out of the way to permit of the passage of stock engaged by the grippers.

17. In a printing-press having a feed-table, a series of gripper-bars, conveyers therefor, a series of stop-gages suspended vertically above said table at the delivery end thereof, means designed to be engaged by said gripper-bars for elevating said gages out of the way to permit of the passage of stock, means for temporarily holding said gages elevated, and means for releasing such latter means for lowering of the gages, the timing thereof conforming to the size of the stock.

18. In a printing-press having a feed-table, a series of gripper-bars, conveyers therefor, a series of stop-gages suspended above said table at the delivery end thereof, a vertically-movable cross-rod from which said gages depend, means connected to said cross-rod designed to be engaged by said gripper-bars for elevating said gages out of the way, means for temporarily holding said gages when elevated, and means for releasing the last-mentioned means, as set forth.

19. The combination with the feed-table, of the vertically-movable cross-rod, a series of stop-gages depending from said cross-rod, means for elevating the latter, a rock-shaft having hooks designed to engage and hold said cross-rod in its elevated position, and means for acting on said rock-shaft to effect the release of said cross-rod, as set forth.

20. In a printing-press having a feed-table, a series of gripper-bars and conveyers therefor, a vertically-movable cross-rod, a series of stop-gages depending from said cross-rod and normally in close relation to the deliv-

ery end of said feed-table, fingers depending from said cross-rod designed to be engaged by said gripper-bars as they are located in front of said feed-table, such engagement effecting the raising of said cross-rod, pivoted hooks designed to engage and hold said cross-rod in its raised position, and means for releasing said hooks from said cross-rod.

21. The combination with a feed-table, of a series of gripper-bars, conveyer-chains therefor, several sets of sprocket-wheels with which said chains engage, means for engaging the shaft of one set of sprocket-wheels for operating said chains, a cam adjustably mounted on such shaft, a vertically-movable cross-rod mounted above said table having a series of depending stop-gages and depending fingers, said cross-rod being elevated when said fingers are engaged by a gripper-bar, a rock-shaft, hooks depending therefrom for holding said cross-rod when elevated, a crank-arm on one end of said rock-shaft, and a rod connected to said crank-arm designed to be acted on by said cam.

22. A feed-table having stepped cut-outs in its top transverse to the line of travel of the stock which latter is designed to contact with the edges of the walls of the several cut-outs.

23. A feed-table having stepped cut-outs in its upper surface, each cut-out having an upright wall with the edge whereof the stock is designed to engage when positioned on the table a side-registering plate movable transversely of said table, and means for actuating the same.

24. A feed-table having stepped cut-outs in its upper surface, each cut-out having an upright wall with the edge whereof the stock is designed to engage when positioned on the table a side-registering plate having a series of cut-outs in its lower edge to conform to said table, and means for operating such plate.

25. The combination with the feed-table, of the longitudinally-movable bar set in the upper surface thereof, a side-registering device carried by said bar, a lever secured to one end of said bar having a transverse slot in its lower end, a vertically-movable rod having a slot in its upper end, means for securing such end to the slotted end of such lever, and means for actuating said rod, as set forth.

26. In a printing-press, the combination of a supporting-frame, a platen, a traveling conveyer adapted to conduct the sheets to be printed over said platen, printing mechanism, means for operating said printing mechanism to print the sheet on the platen, means for operating said conveyer, and elastic tension devices for said conveyer.

27. In a printing-press, the combination of a supporting-frame, a platen, a traveling conveyer adapted to conduct sheets over

said platen, said conveyer being composed of link belts, sprocket-wheels upon which said belts are adapted to travel, rocking supports upon which said sprocket-wheels are carried, printing mechanism, means for operating said printing mechanism to print the sheet on the platen, and spring-tension devices for said rocking supports.

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

WILLIAM H. SMILEY.

Witnesses:

MARY E. MOLEY,
R. WEISS.