

APPLICATION FILED OCT. 11, 1907.

Patented Jan. 26, 1909.

6 SHEETS—SHEET 1.



Inventor
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By George F. Thorne atty.

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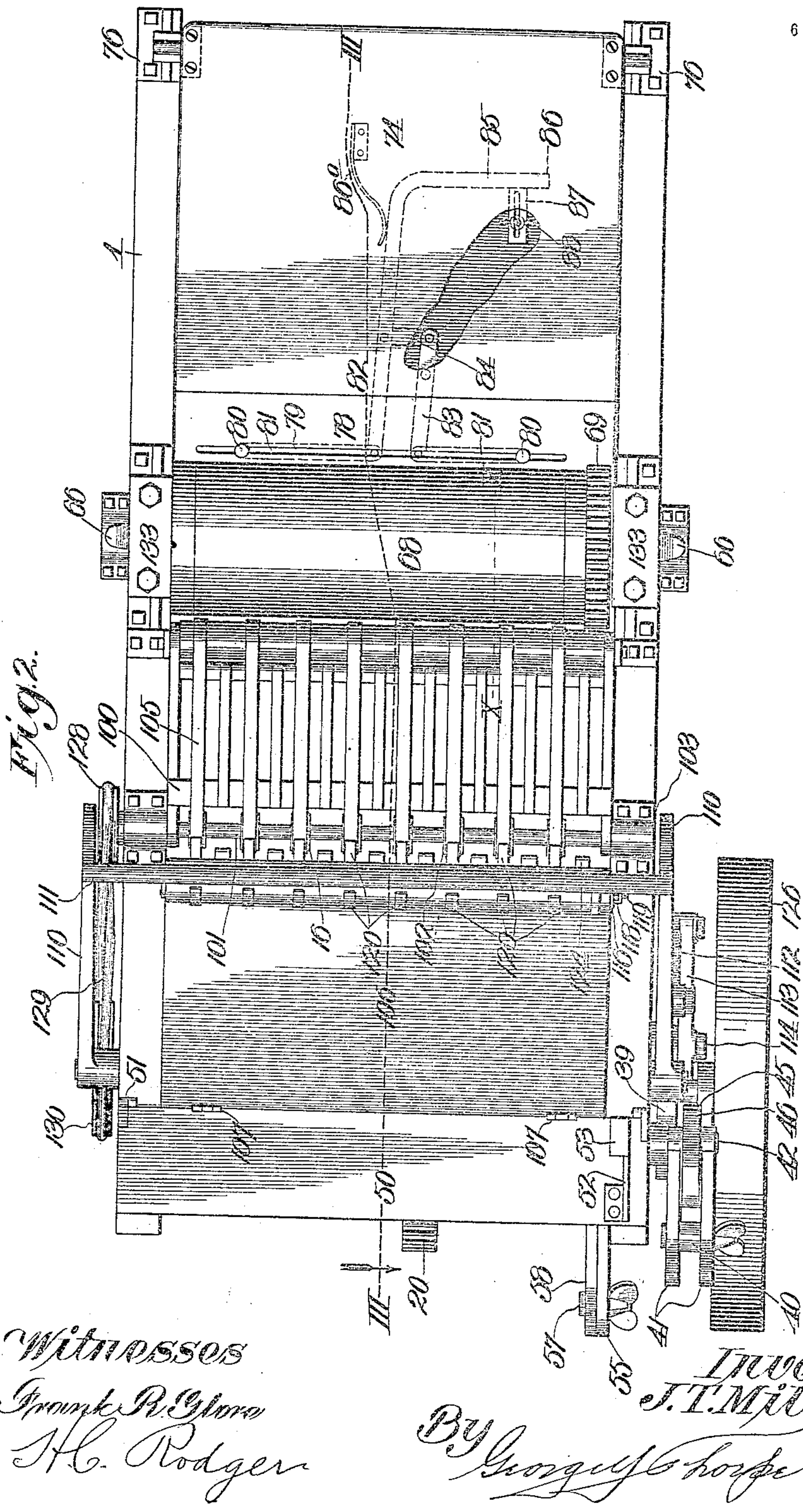
PRINTING PRESS.

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910,704.

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6 SHEETS—SHEET 2.



J. T. MILLER.
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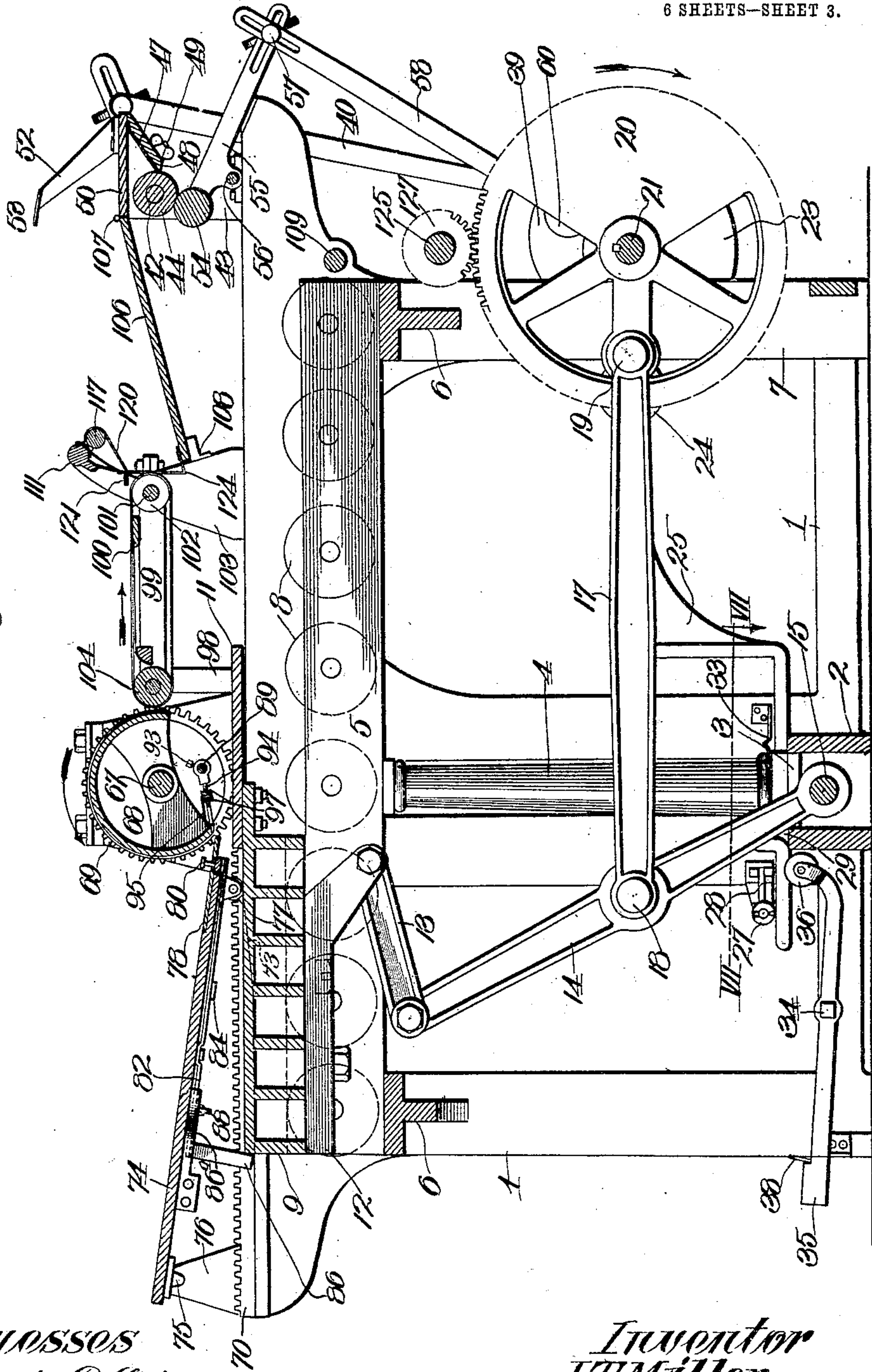
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6 SHEETS—SHEET 3.

Fig. 3.



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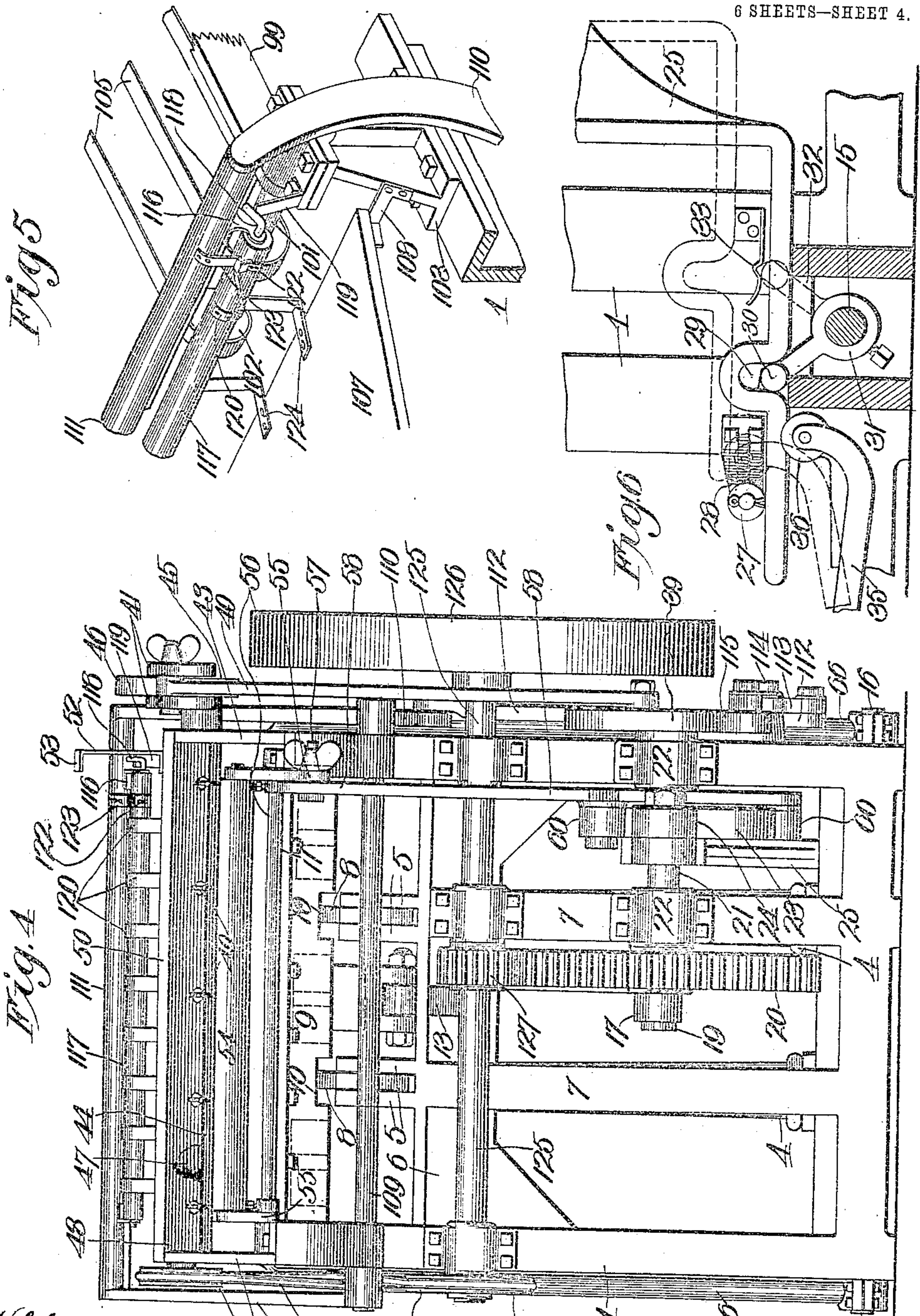
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6 SHEETS—SHEET 5.

Fig. 7

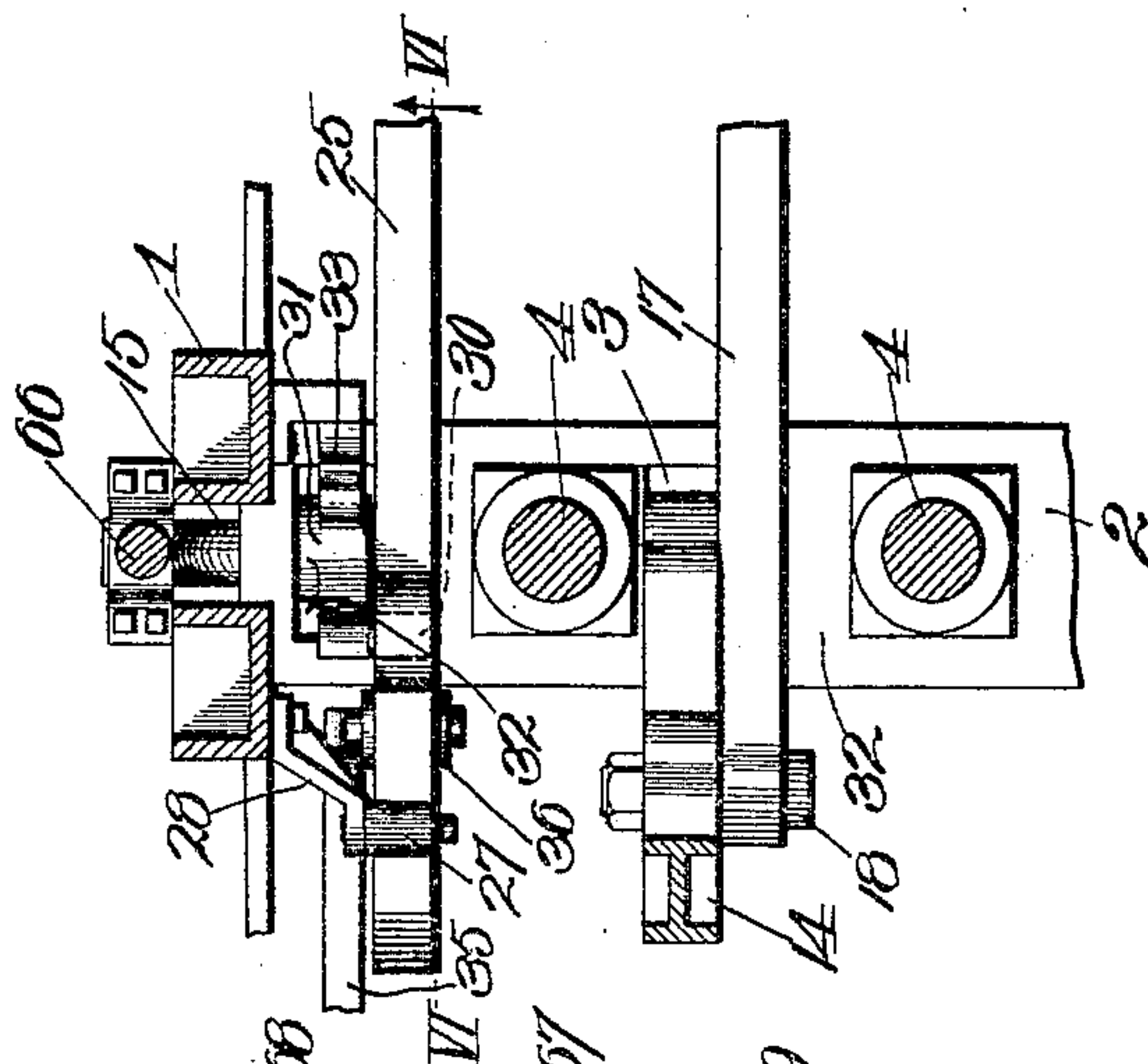


Fig. 9

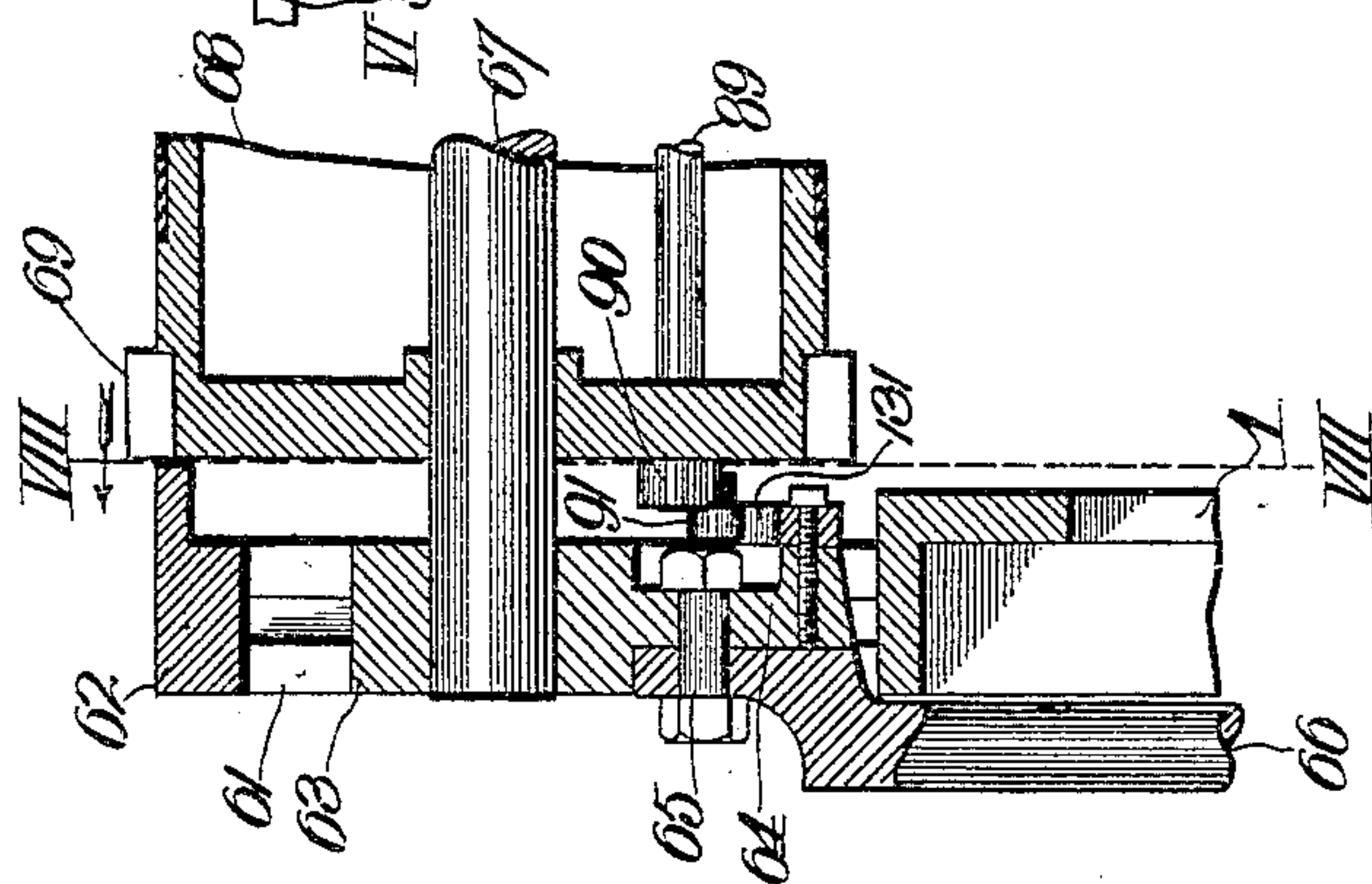
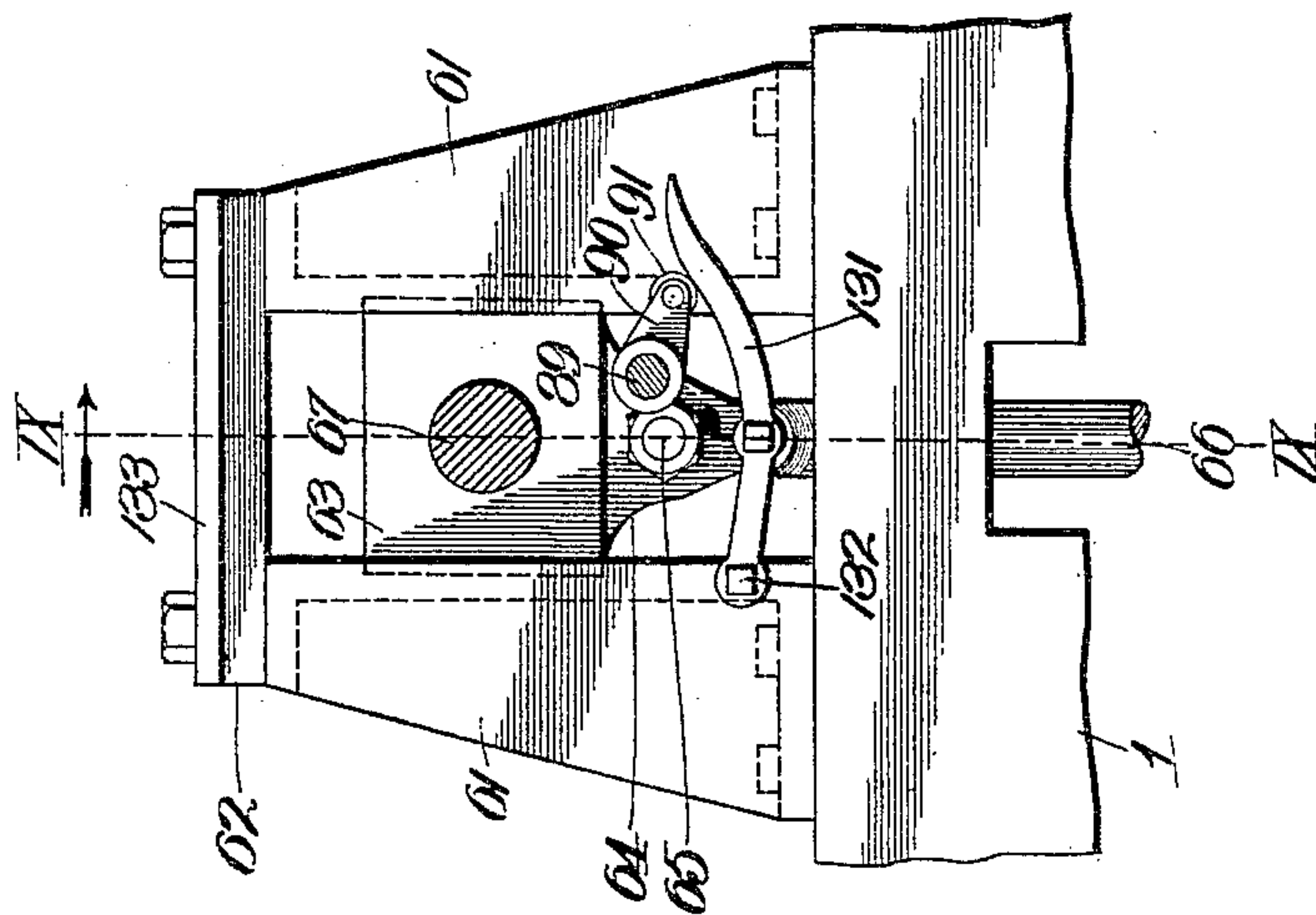


Fig. 8



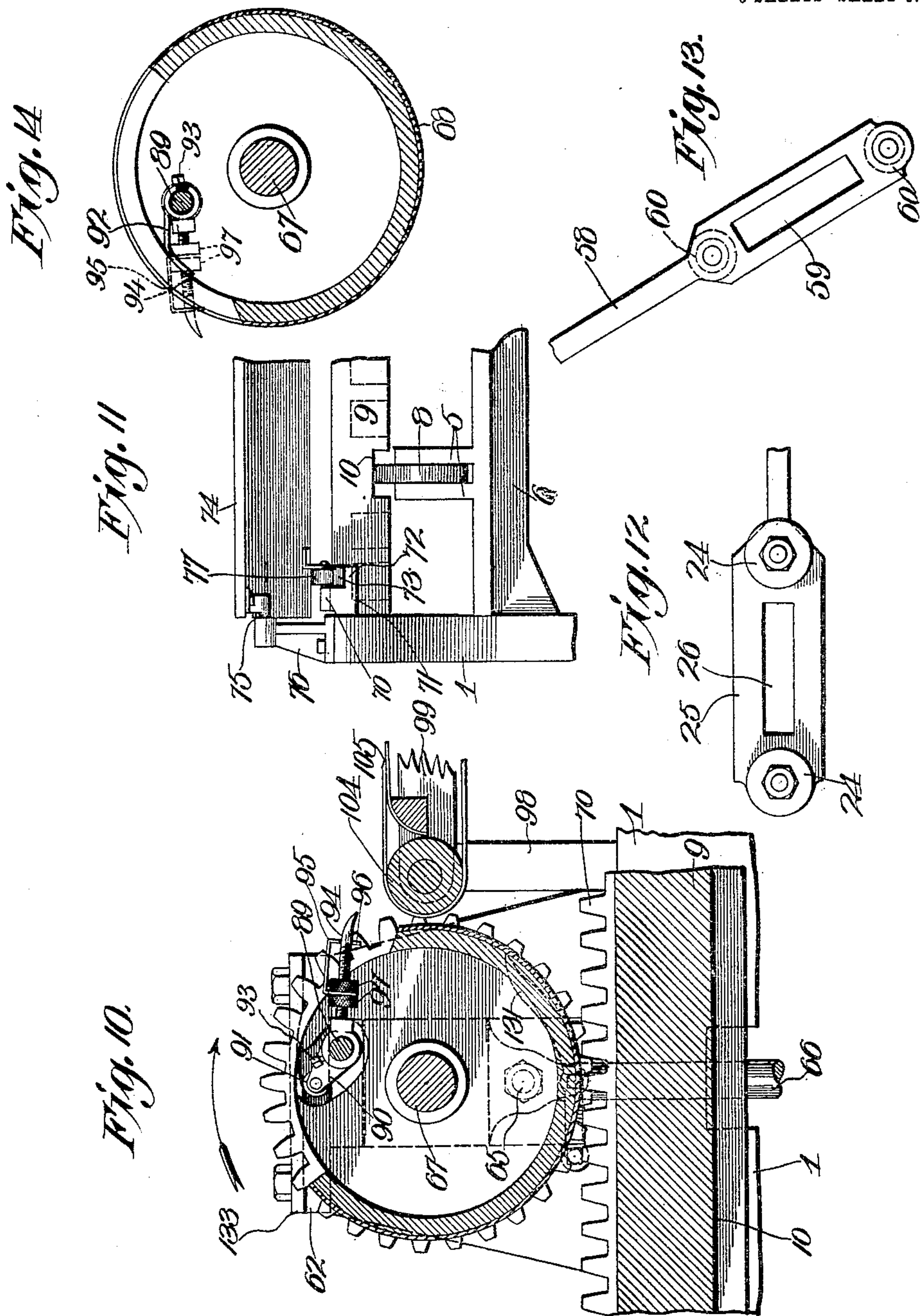
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Patented Jan. 26, 1909.

6 SHEETS—SHEET 6.



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UNITED STATES PATENT OFFICE.

JOHN T. MILLER, OF KANSAS CITY, MISSOURI.

PRINTING-PRESS.

No. 910,704.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed October 11, 1907. Serial No. 397,008.

To all whom it may concern:

Be it known that I, JOHN T. MILLER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

This invention relates to printing presses and my object is to produce an efficient and reliable machine which is entirely automatic in its action and of simple, strong, durable, compact and comparatively inexpensive construction.

With this general object in view and others as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1, is a side elevation of a printing press embodying my invention. Fig. 2, is a top plan view of the same. Fig. 3, is a vertical longitudinal section taken on the line III—III of Fig. 2. Fig. 4, is a front view of the machine. Fig. 5, is a perspective view of a part of the front end of the machine. Fig. 6, is an enlarged vertical section taken on the line VI—VI of Fig. 7. Fig. 7, is a horizontal section on the line VII—VII of Fig. 3. Fig. 8, is a vertical section on line VIII—VIII of Fig. 9. Fig. 9, is a vertical section on line IX—IX of Fig. 8 and also shows a portion of the printing cylinder. Fig. 10, is a vertical section on line X—X of Fig. 2. Fig. 11, is a front view of one of the upper corners of the press with the parts in the background omitted. Fig. 12, is a side view of a part of the reciprocatory bar forming part of the machine. Fig. 13, is a side view of part of another reciprocatory bar forming part of the machine, and Fig. 14, is a vertical section through the cylinder but looking toward the end opposite to that shown in Fig. 10.

In the said drawings, 1 indicates a suitable frame of skeleton construction and embodying at a suitable point a cross bar 2 of inverted-U shape by preference provided with an opening 3.

4 are standards rising from the cross bar at opposite sides of the opening and forming intermediate supports for two pairs of longitudinally extending bars 5, supported at their ends on cross bars 6 of the frame and cast integral therewith by preference, as shown, the rear cross bar connecting the up-

per ends of bearing standards 7 forming parts of the frame.

8 indicates longitudinal series of anti-friction rolls journaled in and between the pairs of bars 5 and forming supports for the reciprocatory bed 9, fitting snugly between the sides of the frame and channeled in its underside to receive said rolls, the bases of said channels forming tracks 10 to run directly upon the rolls.

Secured to and projecting rearwardly from the bed is an ink distributing plate 11, the upper surface of the type, not shown, upon the bed occupying substantially the same horizontal plane as the corresponding face of said plate.

12 is a longitudinal rib at the underside of the bed pivotally connected by link 13 to a rock bar 14 extending through opening 3 and journaled at its lower end on the transverse shaft 15 within the bar 2, said shaft being journaled near its ends in the sides of the frame and equipped outwardly thereof with depending cranks 16, for a purpose which hereinafter appears.

17 is a link pivotally connected at 18 to rock-bar 14 and to the wrist pin 19 projecting from a large gear wheel 20 arranged between standards 7 and secured rigidly upon the inner end of a transverse shaft 21 journaled in bearings 22 secured to the rear end of the frame, see Fig. 4.

23 is a cam secured rigidly on shaft 21 and consisting of a large and a small portion arranged diametrically opposite to each other with their tread surfaces concentric with respect to the shaft and the opposite ends of the large portion converging to meet the periphery of the small portion, the cam being of such form that any diametric line intersecting concentric peripheries of the large and small portions of the cam is uniform, that is to say is equal to the distance between the pair of rollers 24 journaled on a longitudinally extending bar 25 of step-shape in side view, with its rear portion enlarged and provided with a longitudinal slot 26 through which shaft 21 extends. The front portion of said bar rests by preference, on cross bar 2 and is prevented from turning during its reciprocatory action by the overlying roller 27 journaled on bracket 28 secured to the frame. The bar is bent to inverted U shape to provide the vertical elongated opening 29 to receive the pin 30 of a crank arm 31 secured to shaft 15 and

projecting up through a slot 32 in cross bar 2, a spring catch 33 secured to the frame being adapted to engage pin 30 as hereinafter explained, for the purpose of holding it in the position shown by dotted lines Fig. 6.

Pivoted at 34 to the frame is a foot lever 35 having its rear end upturned at a point between cross bar 2 and roller 27 and provided with a flanged guide roller 36 engaging bar 25 from below. At its front end the foot lever is provided with a laterally projecting lug 37 engaging the upwardly projecting arm of and holding repressed the spring catch 38 secured to the frame.

39 is an eccentric secured on shaft 21 at one side of the frame and pivoted to said eccentric is a link 40 adjustably pivoted at its upper end to the rearwardly projecting crank arm 41 of a transverse shaft 42 journaled in standards 43 rising from the rear end of the frame. Said shaft is provided with an inking roller 44 and at one end with a ratchet wheel 45 engaged by a pivoted pawl 46 carried by crank arm 41, said pawl being adapted upon each downward movement of arm 41 to impart rotary movement to the ratchet wheel and roller 44. The roller 44 in conjunction with the downwardly and forwardly sloping plate 47 and the standards 43 form an ink font, plate 47 resting on plate 48 connecting the standards and equipped with set screws 49 to adjust the spring plate 47 and thus regulate the quantity of ink which roller 44 is permitted to distribute.

50 is a plate hinged at 51 to the standards and forming a cover for the ink font and also a support for the forwardly projecting flange 53 at its upper end to effect the release of each sheet of paper, as hereinafter explained.

54 is an ink-distributing roller for engagement at times with roller 44 and carried by and connecting the front ends of a pair of rock arms 55 secured on a cross rod 56 journaled on the frame, one of said rock arms being adjustably pivoted at 57 to a reciprocatory bar 58 having a longitudinal slot 59 engaging shaft 21 and provided at opposite ends of said slot with rollers 60 in peripheral engagement with the cam 23 at diametrically opposite points so as to be reciprocated as said cam is revolved and cause roller 54 to take ink from roller 44 and apply it to the inking plate 11 from which it is transferred by other inking rollers, not shown, because of common construction and arrangement, to the type when the bed moves rearwardly as hereinafter referred to, it being understood that plate 11 is recharged with ink on the same reciprocatory movement.

Bearing standards at opposite sides of the press frame consist of a pair of brackets 61 connected by top bars 62 and slidingly

mounted in said standards to operate vertically are bearing boxes 63 having depending arms 64 pivotally connected at 65 to the upper ends of a pair of link rods 66 pivoted at their lower ends on cranks 16 of shaft 15 hereinbefore described, so that rocking movement of said shaft will impart reciprocatory movement to said slidable bearing boxes and thus raise and lower shaft 67 and the slotted hollow cylinder 68 mounted thereon, one end of said cylinder forming a gear wheel 69 meshing with a rack bar 70 secured in a longitudinal recess 71 in bed 9, the rack bar being formed with an inwardly projecting flange 72 having an upwardly sloping or cam face 73 at its rear end, see Fig. 11, and the dotted line in Fig. 3.

74 indicates a feed table at the front end of the machine and pivoted at 75 to standards 76 rising from the frame. At its front end the feed table is provided with rollers 77 engaging ribs 72 and held when the bed is at the limit of its rearward movement, at the top of cam surfaces 73 so as to cause the rearwardly projecting plate 78 carried by the table to almost contact with the cylinder in a plane below its axis. Said plate is set into the table 74 flush with the upper surface of the latter and is provided with a slot 79 extending transversely of the machine, through which extend the vertical pins 80 carried at the outer ends of a pair of bars 81 pivoted at their inner ends to a pair of levers 82 and 83 pivoted to and underlying the table 74. A link 84 pivotally connects levers 82 and 83 rearward and forward respectively of their pivotal points. Lever 82 is provided with a laterally projecting arm 85 terminating in a depending arm 86 adapted to be struck by the bed on its forward movement for the purpose of sliding pins 80 inward or toward each other, said pins being held pressed yieldingly outward by means of a spring 86^a secured to plate 74 and engaging lever 82. To limit the outward movement of said pins, plate 74 is equipped with a slidable stop bar 87 for engagement with the rear edge of arm 85, a clamping screw 88 being employed to secure the stop plate 87 at the desired point of adjustment.

The operator will successively feed the sheets of paper to be printed by placing them upon table 74 and sliding them forward until between pins 80 without exercising any special care except to place the paper within the range of movement of the particular pin which is to engage it. Now when the bed makes its rearward movement it strikes arm 86 and causes the pins to move inward, so that the particular pin referred to shall engage and slide the paper toward the other pin until the paper attains the exact position which it shall occupy upon the table. As a result the printing will occur at exactly the same point on each sheet.

89 is a rock shaft journaled in the ends of the cylinder parallel with shaft 67 and provided at one end with a crank 90 equipped with an anti-friction roller 91. Near its opposite end by preference, a spring 92 is provided to hold the shaft yieldingly at one limit of its rocking movement. Secured by screws 93 on the rock shaft is a pair of grippers (one only appearing), each consisting of a threaded rod 94.

95 is a U-shaped stop having its inner end fitting slidingly on the rod and its outer end forked as at 96, and seated astride the rod, a pair of nuts 97 engaging the rod to secure the stop rigidly thereon, it being noticed by reference to Fig. 10, that the grippers stand at an angle to the roller-equipped crank arm and that the spring 92 tends to cause the grippers to press yieldingly against the cylinder where it forms one side of the slot thereof.

98 is a pair of standards rising from the opposite sides of the frame at the rear side of and contiguous to the cylinder and secured rigidly to and projecting rearwardly from the upper ends of said standards are a pair of bars 99 connected near their rear ends by a brace bar 100 and forming journals at such ends for the transverse shaft 101 equipped with a series of convex-faced rollers 102, the ends of the shaft being also journaled in bearing standards 103 rising from the sides of the frame, and journaled in the front ends of said bars 99 is a roller 104, connected by a series of longitudinally extending tapes 105 with the rollers 102.

106 is an inclined table hinged at its rear end at 107 to the hinged cover 50 and resting at its front end on brackets 108, carried by bearing standards 103. A rock frame pivoted on the rod 109 journaled in the frame at its rear end, comprises a pair of approximately semicircular arms 110 connected by a cross bar 111, the arms being pivotally connected by link 112 with the rock lever 113 pivoted at 114 to the frame and provided at its rear end with a roller 115 engaging the underside of the eccentrically disposed disk 39, so that said disk once in each revolution shall swing the rock frame rearwardly and permit it to gravitate back to its original position. The cross bar of the rock frame when in normal position stands above and slightly rearward of the tapes 105 and carried by said cross bar is a pair of brackets 116 in which a roller 117 is journaled, the spindle of said roller having a crank arm 118 to be turned by the arm 119 projecting from one of the standards 103, the turning of roller 117 causing the jaws 120 carried by said roller to swing upward and clamp the printed sheet upon the tapes against the stationary jaws 121 carried by the cross bar 111 of the swing frame, it being noticed by reference particularly to Fig. 5 that said jaws are held with the paper clamped between them by the spring detents

122 and 123 carried by the roller 117 and cross bar 111 respectively, the detents 122 being snapped into engagement with detent 123 as said roller 117 is turned as explained.

124 are stops projecting upward from the front or free end of table 106, to arrest each sheet of paper as it travels forward on the tapes and hold it in position to be engaged by the jaws 120 and 121, and also to prevent the sheets of paper from sliding forwardly off the table 106 after the sheets are deposited thereon, this deposit being effected by the engagement of the crank 118 of the roller spindle coming in contact with the inwardly projecting flange 53 of arm 52 herebefore described, the cross bar 111 passing over said flange and one of the arms 110 passing at the outer side of said flange, the resistance of the flange overcoming the yielding resistance offered by the detents so as to effect the disengagement of the same, in which relation they remain until again re-engaged by the reverse action of the roller through the instrumentality of arm 119.

To drive the machine it is provided at its rear end with a shaft 125 equipped with a belt wheel 126 and a pinion 127 meshing with wheel 20 and to operate the endless tapes 105 shaft 101 is equipped with a pulley 128 connected by a cross belt 129 with a pulley 130 on shaft 125.

When the parts are in substantially the position shown in Figs. 1 and 3, a sheet of paper is upon the table 74 and is pressed against one wall of the slot of the cylinder by the grippers 94, the preceding sheet of paper—already printed—lying upon the tapes with its front end clamped between jaws 120 and 121.

Assuming that the machine is now started so as to operate wheel 20 in the direction indicated by the arrow thereon (see Fig. 3) the bed 9 will be moved rearward and through the agency of rack bar 70 will rotate the cylinder in the direction indicated by the adjacent arrow Fig. 3, so as to draw the paper clamped thereagainst from off the rear end of table 74, and over type carried by the bed, the cylinder in this action pressing the paper down upon the type so that it shall receive an impression therefrom. This movement of said parts continues until the cylinder has made about three-fourths of a revolution or until the free or tail end of the paper has been raised above the plane of the endless tapes which are traveling in the direction indicated by the arrow Fig. 3, it being understood that as the free or tail end of the paper attains the position mentioned, it is free to and does spring outward above the tapes this slight tendency to straighten out and centrifugal force induced by the movement of the cylinder obviously tending to throw said tail end outward from the cylinder. As this movement of the cylinder and

bed takes place the reciprocatory bar 25 remains stationary because its rollers 24 are in engagement with the concentric portions of the periphery of cam 23. During such movement the eccentric disk 39 by engagement with roller 115 operated a half revolution so as to operate bar 113 and cause the rock-frame equipped with jaws 120 and 121, to swing rearward until the crank arm of roller 117 came into engagement with flange 53 to effect the separation of said jaws and the deposit of the printed sheet of paper formerly resting on the tapes, upon table 106, it being also understood that said eccentric disk through the connections described incidentally caused inking roller 54 to engage and deposit ink upon the ink distributing plate 11.

As the actions described terminate, wheel 20 completes a half revolution and therefore through the connection described, starts the table forward and incidentally reverses the operation of the cylinder, the inking roller and the rock frame for transferring the sheets from the tapes onto the table 106 and shoving the free or tail end of the paper forwardly upon the tapes. As said reverse operation begins the rearmost roller 24 of bar 25 moves rearward upon one and the companion roller upon the other surface of the cam connecting the peripheries of the concentric portions thereof, this action through the connections between the slot 29 of bar 25 and the connecting pin 30 of crank arm 31 of rock shaft 15, rocking said shaft so as to swing its depending cranks 16 forward. This slight forward and upward swing of the crank arms while the cylinder is making such reverse rotatable movement, raises the cylinder bodily through the medium of the links 66 and the sliding boxes 63, it being also noticed in this connection by reference particularly to Fig. 8, that the connections between one of the rods 66 and the curved track 131 pivoted thereto and fulcrumed as at 132 on the contiguous bearing standard 61, raises the free end of said curved track for a purpose which presently appears. The elevation of the cylinder taking place by preference just about as the said reverse rotation of the cylinder begins, and as a result roller 91 of the crank arm of the rock shaft 89 comes into engagement with the overhanging track 133 projecting inward from the bar 62 of the contiguous standards 61. Said crank arm 90 as a result of such engagement is reversed and the rock shaft consequently rocked to withdraw the grippers from engagement with the sheet upon the cylinder and at that time moving toward the tapes, with its free end upon the latter it being understood that the said paper is resting for the greater part of its length upon the tapes before it is released by the grippers as explained, in order that the frictional engagement of the tapes with the pa-

per may positively and reliably effect the rearward movement of the latter, this movement continuing until the paper is arrested by contact with the stops 124. The reverse movement of the cylinder continues and as about a half revolution is completed the cam 23 starts bar 25 forward toward its original position by the movement of the front roller of said bar toward the periphery of the larger portion of the cam and corresponding movement of the other roller toward the periphery of the small portion of the cam, this forward movement of the bar rocking the rock shaft 15 back to its original position so as to swing the crank arms 16 downward and rearward to their original positions and thus through the connections between the crank arms and the cylinder lower the latter, it being understood, however, that before this lowering of the cylinder and hence of the curved track 131 occurs, roller 91 clears track 133 and the grippers are pressed back against the wall of the slot of said cylinder, and are again swung away from said wall by the engagement of roller 91 of crank arm 90 with curved track 131 and remain in such position until the gages 95 engage the projecting end of the sheet of paper upon table 74 and push the same forward slightly when the downward movement of the cylinder and hence of the curved track 131 occurs to permit the grippers to press the end of said sheet of paper against the opposing wall of the slot of the cylinder, at which time the parts are in their original positions so that all future operations are repetitions of those described. During the reverse movement of the cylinder the printed sheet deposited upon the tapes by such reverse movement is carried forward until it engages and is arrested by stops 124 and as the reverse movement ends and the grippers pick up the next sheet of paper as explained, the grippers of the rock-frame at the rear end of the machine engage the printed sheet upon the tapes and swing rearwardly with the same until the flange 53 of arm 52 moves the jaws apart and permits the paper to fall down upon the table 106.

It will be understood by reference to Fig. 6 particularly, that when the cylinder is elevated the front end of bar 25 is rearward of roller 27 which normally holds said bar down into operative relation with the crank arm 31, and that the pin of the crank arm is in engagement with the spring catch 33 which catch engages said pin each time the cylinder is elevated. If it be desired to maintain the cylinder in its elevated position, for instance when the machine is in operation but no paper is being fed into it and thereby prevent the cylinder from coming into contact with the type and being defaced by ink therefrom, the operator presses with his foot upon the front end of lever 35 and swings the rod 25 upward to substantially the position shown

in dotted lines so that the reciprocation of the rod while raised will be above the plane of the roller 27 and therefore inoperative as regards rock shaft 15. It will also be seen that the roller 27 acts as a positive lock against upward movement of the front end of reciprocatory bar 25 during the printing operation of the cylinder, that is during the time when the cylinder is depressed.

It will also be noticed by reference to Fig. 10, in which the cylinder is shown as making its reverse movement, as indicated by the arrow, that the track 133 is so formed as to permit the grippers to close against the wall of the cylinder so as to avoid conflict with the roller 104 of tapes 105, the grippers as hereinbefore explained being again opened when the roller comes into engagement with the curved track 131, it being necessary as the parts are proportioned and arranged that the grippers close in order that they may pass roller 104, it being understood of course that the parts may be so proportioned as to avoid the necessity of closing the grippers after they are once opened to release the printed sheet of paper until they are again ready to engage a following or unprinted sheet upon the table 74.

From the above description it will be apparent that I have produced a printing press embodying the features of advantage enumerated and I wish it to be understood that I do not desire to be restricted to the exact details of construction shown and described as obvious modifications will suggest themselves to one skilled in the art.

Having thus described the invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In a printing press, a suitable frame provided with vertical slots, boxes slidable therein, a shaft suitably journaled in the boxes and equipped with a hollow longitudinally slotted cylinder, a rock shaft for the cylinder, equipped with grippers to clamp a sheet of paper against one wall of the slot of the cylinder and with a crank arm, means to turn the cylinder and then reverse its movement, means to raise the boxes and the cylinder as the reverse movement of the latter occurs, a track above the said crank arm to be engaged by and operate the crank arm during the reverse movement of the cylinder to effect the release of the paper by the grippers, and a pivoted track pivotally connected to one of the boxes and underlying the said crank arm and adapted while the cylinder is elevated to be engaged by and repress the crank arm and hold it repressed until the reverse movement of the cylinder is ended and the second sheet of paper is interposed between the said grippers and the said wall of the slot.

2. In a printing press, a suitable frame provided with vertical slots, boxes slidable

therein, a shaft suitably journaled in the boxes and equipped with a hollow longitudinally slotted cylinder, a rock shaft for the cylinder equipped with a spring tending to turn the rock-shaft and cause the grippers to clamp a sheet of paper against one wall of the slot of the cylinder and with a crank arm, means to turn the cylinder and then reverse its movement, means to raise the boxes and the cylinder as the reverse movement of the latter occurs, a track above the said crank arm to be engaged by and operate the crank arm during the reverse movement of the cylinder to effect the release of the paper by the grippers, and a pivoted track pivotally connected to one of the boxes and underlying the said crank arm and adapted while the cylinder is elevated to be engaged by and repress the crank arm and hold it repressed until the reverse movement of the cylinder is ended and the second sheet of paper is interposed between the said grippers and the said wall of the slot.

3. A printing press, comprising a suitable frame, a printing bed thereon, a feed table above the bed, a cylinder rearward of said table and above the bed and geared to the latter and provided with a slot, a rock-shaft carried by the cylinder parallel with its axis and provided at one end with a crank and within the cylinder with grippers, yielding means to cause the grippers to clamp an interposed sheet of paper projecting rearwardly from the table, against a wall of said slot, means to move the bed rearwardly and incidentally turn the cylinder to draw the paper in the same direction and press it down upon the bed and then convey it upward and forward until it rests on top of the cylinder, and then reverse the movement of the bed and cylinder to move the paper rearward, means to raise the cylinder without throwing it out of gear with the bed, a track for engagement by the crank during the early portion of the reverse movement of and while the cylinder is elevated, to reverse the rocking movement of the shaft and effect the release of the paper by the grippers, and a second track for engagement by the crank to effect a second movement of the grippers away from the wall of the slot before the reverse movement of the cylinder ceases.

4. A printing press, comprising a suitable frame, a printing bed thereon, a feed table above the bed, a cylinder rearward of said table and above the bed and geared to the latter and provided with a slot, a rock-shaft carried by the cylinder parallel with its axis and provided at one end with a crank and within the cylinder with grippers, a spring to cause the grippers to clamp an interposed sheet of paper projecting rearwardly from the table, against a wall of said slot, means to move the bed rearwardly and incidentally turn the cylinder to draw the paper in the same direc-

tion and press it down upon the bed and thus convey it upward and forward until it rests on top of the cylinder, and then reverse the movement of the bed and cylinder to move the paper rearward, means to raise the cylinder without throwing it out of gear with the bed, a track for engagement by the crank during the early portion of the reverse movement of and while the cylinder is elevated, to reverse the rocking movement of the shaft and effect the release of the paper by the grippers, and a second track for engagement by the crank to effect a second movement of the grippers away from the wall of the slot before the reverse movement of the cylinder ceases.

5. In a printing press, a suitable frame provided with vertical slots, boxes slidable therein, a shaft suitably journaled in the boxes and equipped with a cylinder, a reciprocatory bed underlying and geared to said cylinder to rotate it back and forth, a rock-shaft suitably journaled in the frame and provided with cranks at its ends, links pivotally connecting said cranks with said boxes, a crank arm projecting from said rock-shaft, a reciprocatory bar having an inverted-U-shaped portion normally engaging said crank arm to rock the same back and forth, a roller overlying and normally holding said bar in operative relation to said crank arm and arranged in such position that when the bar moves in one direction it is withdrawn from under said roller, a spring catch to engage said crank arm when the said bar is withdrawn from under the roller to prevent accidental movement of said rock-shaft, and a foot-lever underlying and engaging said bar between said underlying

roller and said rock shaft and adapted when operated in one direction to raise the adjacent end of said bar above said roller and disengage it from said crank arm.

6. In a printing press, a suitable frame provided with vertical slots, boxes slidable therein, a shaft suitably journaled in the boxes and equipped with a cylinder, a reciprocatory bed underlying and geared to said cylinder to rotate it back and forth, a rock-shaft suitably journaled in the frame and provided with cranks at its ends, links pivotally connecting said cranks with said boxes, a crank arm projecting from said rock-shaft, a reciprocatory bar having an inverted-U-shaped portion normally engaging said crank arm to rock the same back and forth, a roller overlying and normally holding said bar in operative relation to said crank arm and arranged in such position that when the bar moves in one direction it is withdrawn from under said roller, a spring catch to engage said crank arm when the said bar is withdrawn from under the roller to prevent accidental movement of said rock shaft, a foot-lever underlying and engaging said bar between said underlying roller and said rock-shaft and adapted when operated in one direction to raise the adjacent end of said bar above said roller and disengage it from said crank-arm, and means for locking said lever to hold said reciprocatory bar in its elevated or inoperative position.

In testimony whereof I affix my signature, in the presence of two witnesses.

JOHN T. MILLER.

Witnesses:

H. C. RODGERS,
G. Y. THORPE.