

No. 764,643.

PATENTED JULY 12, 1904.

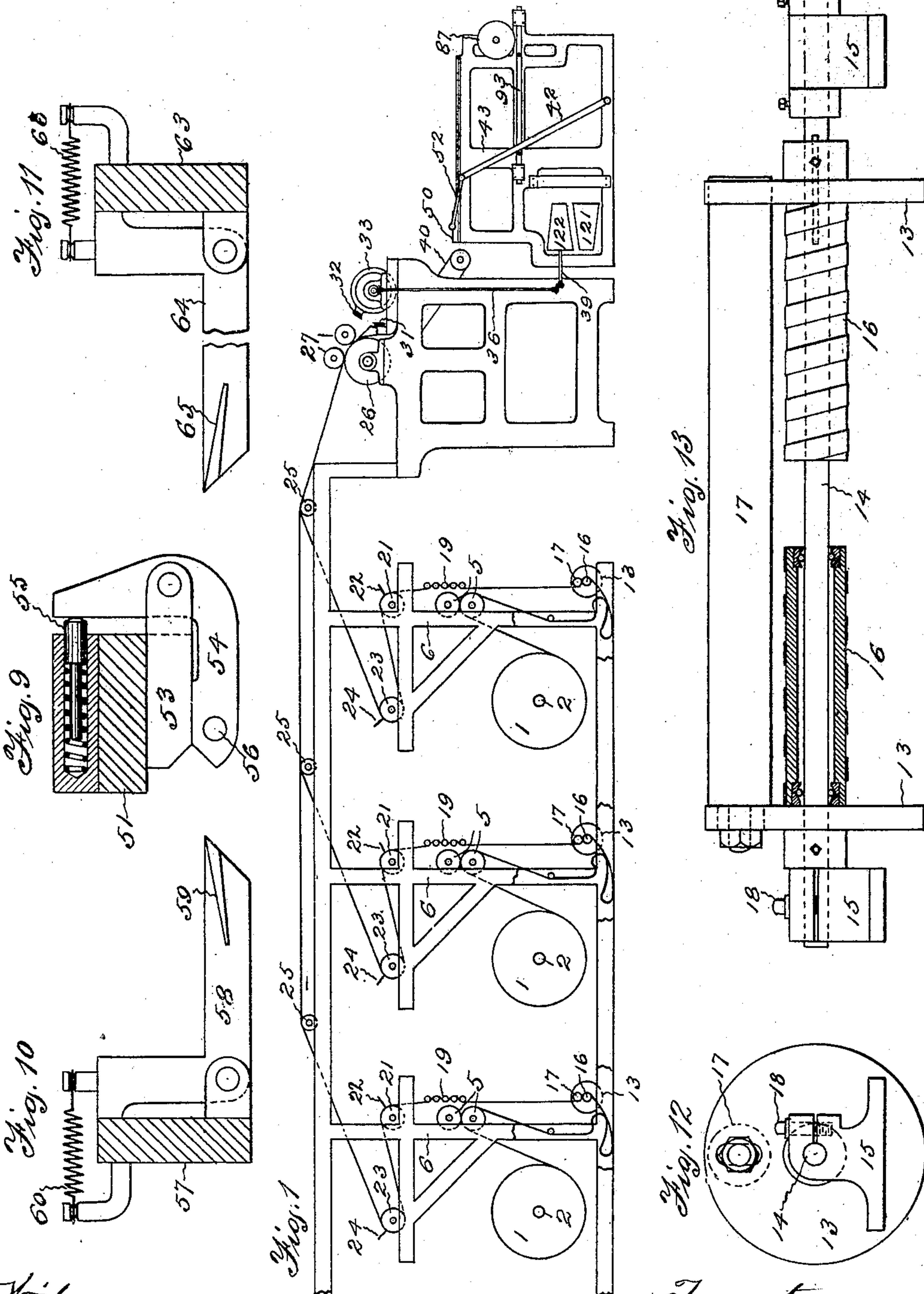
C. F. TAYLOR & G. M. McCLELLAN.

PAPER RULING MACHINE.

APPLICATION FILED JULY 18, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:
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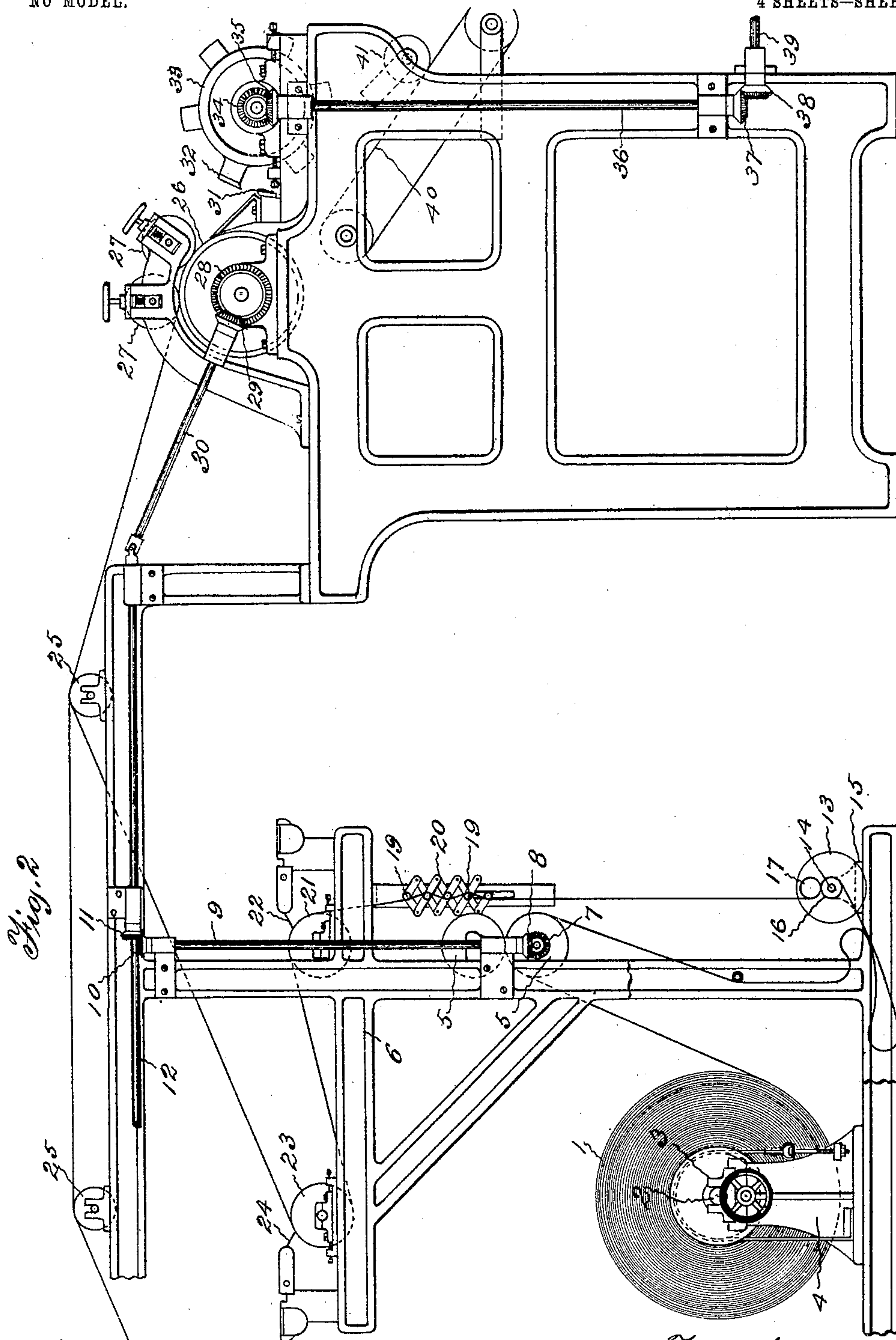
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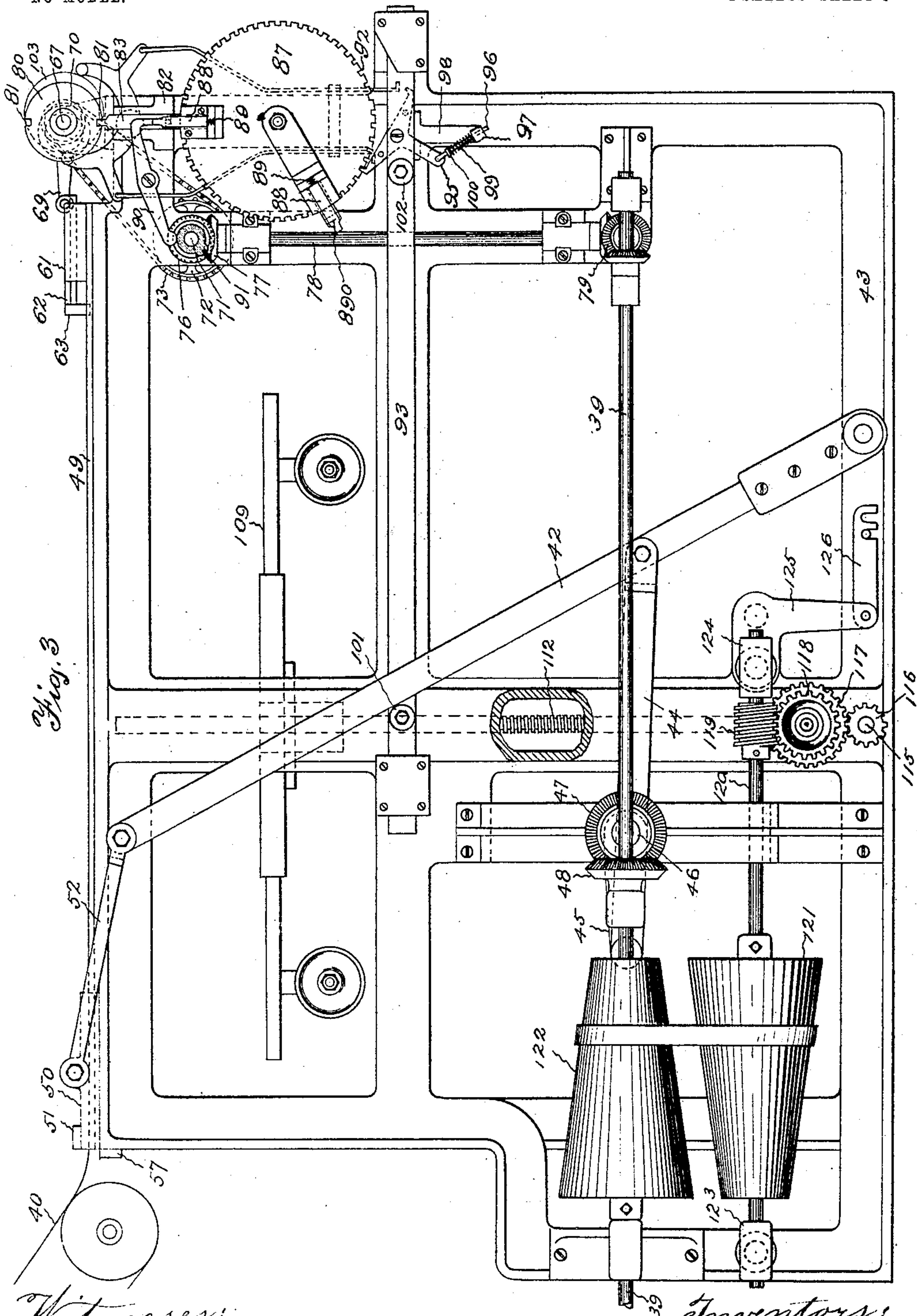
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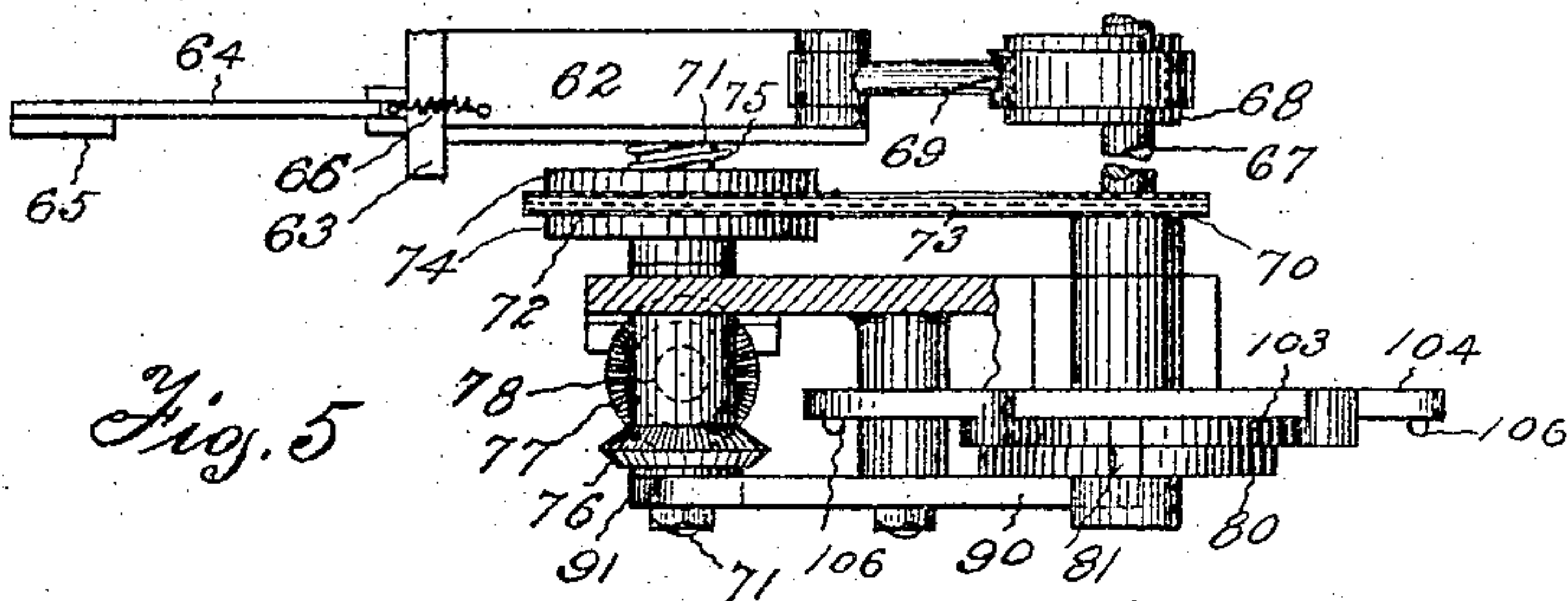


Fig. 5

Fig. 6

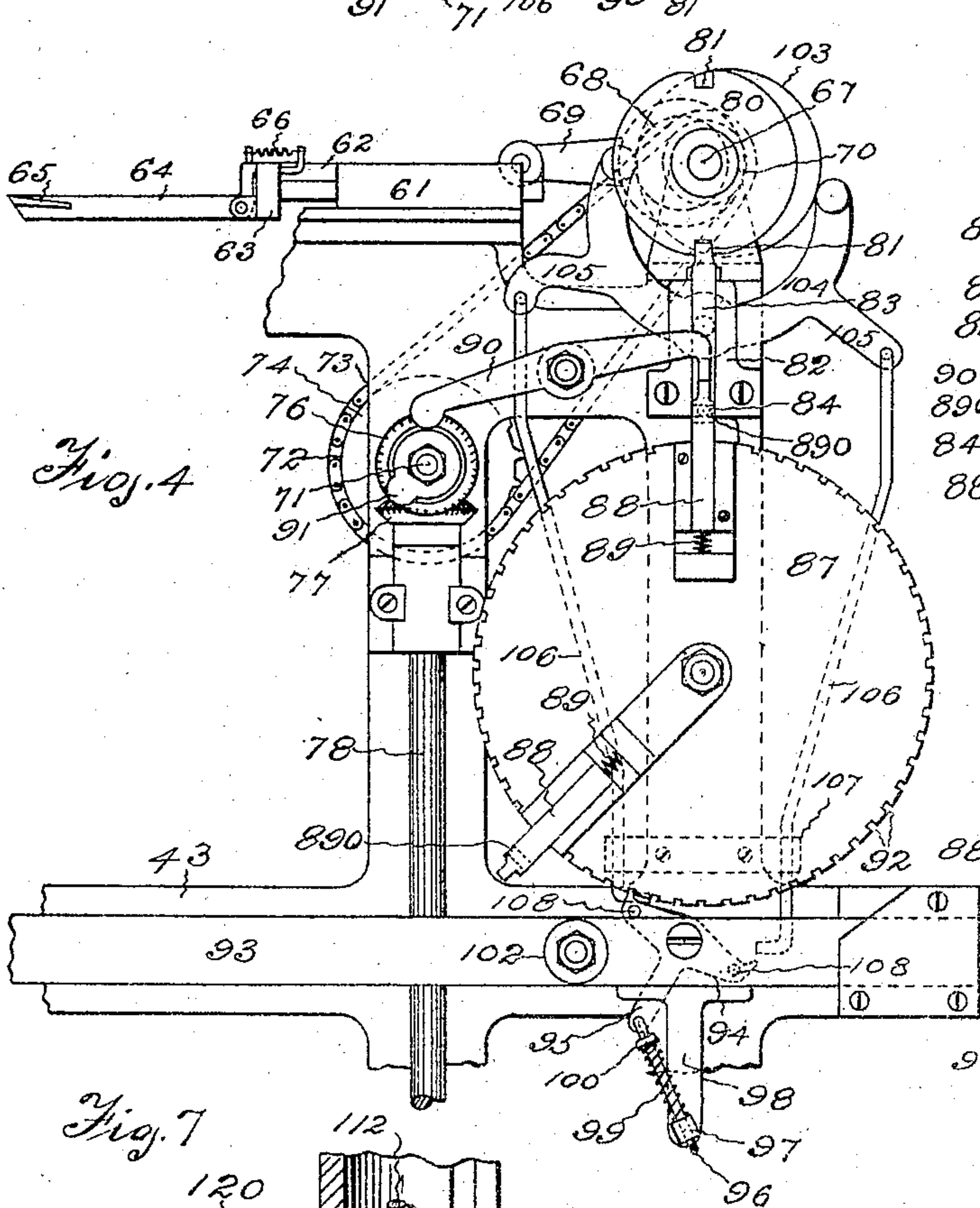


Fig. 4

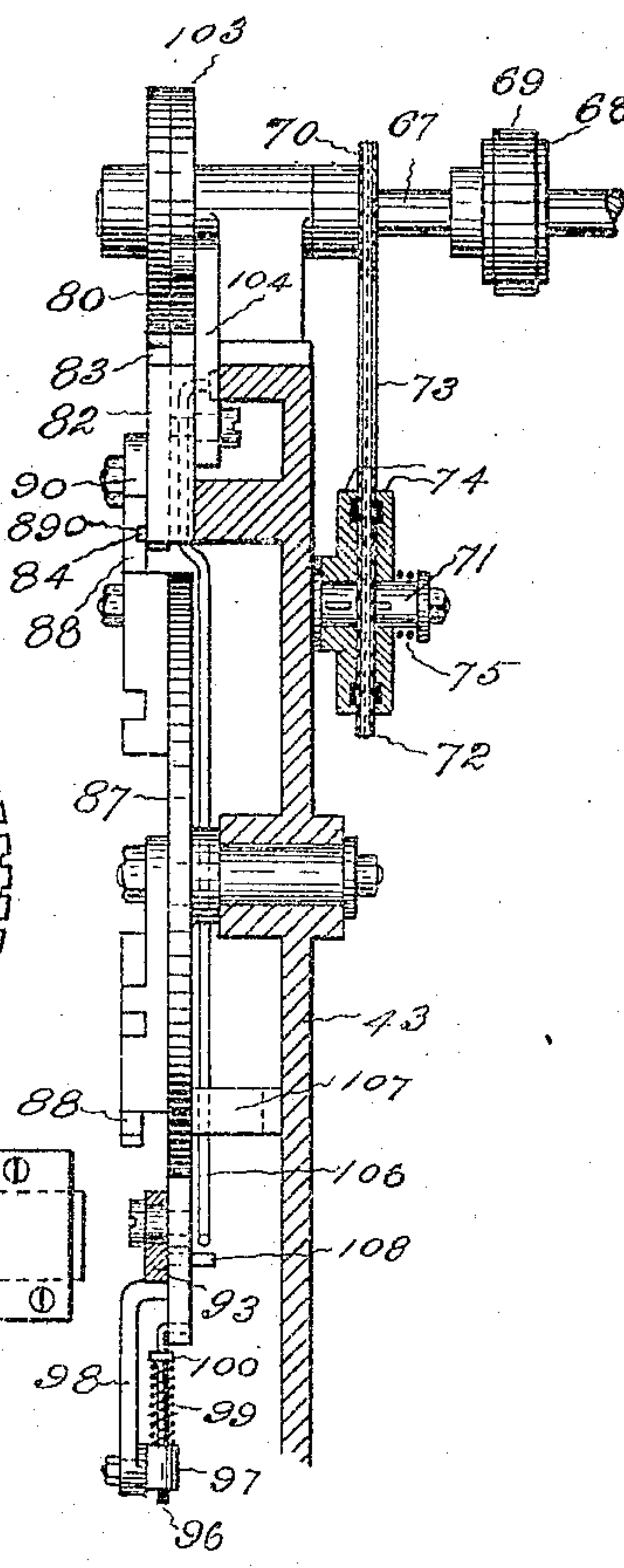


Fig. 6

Fig. 7

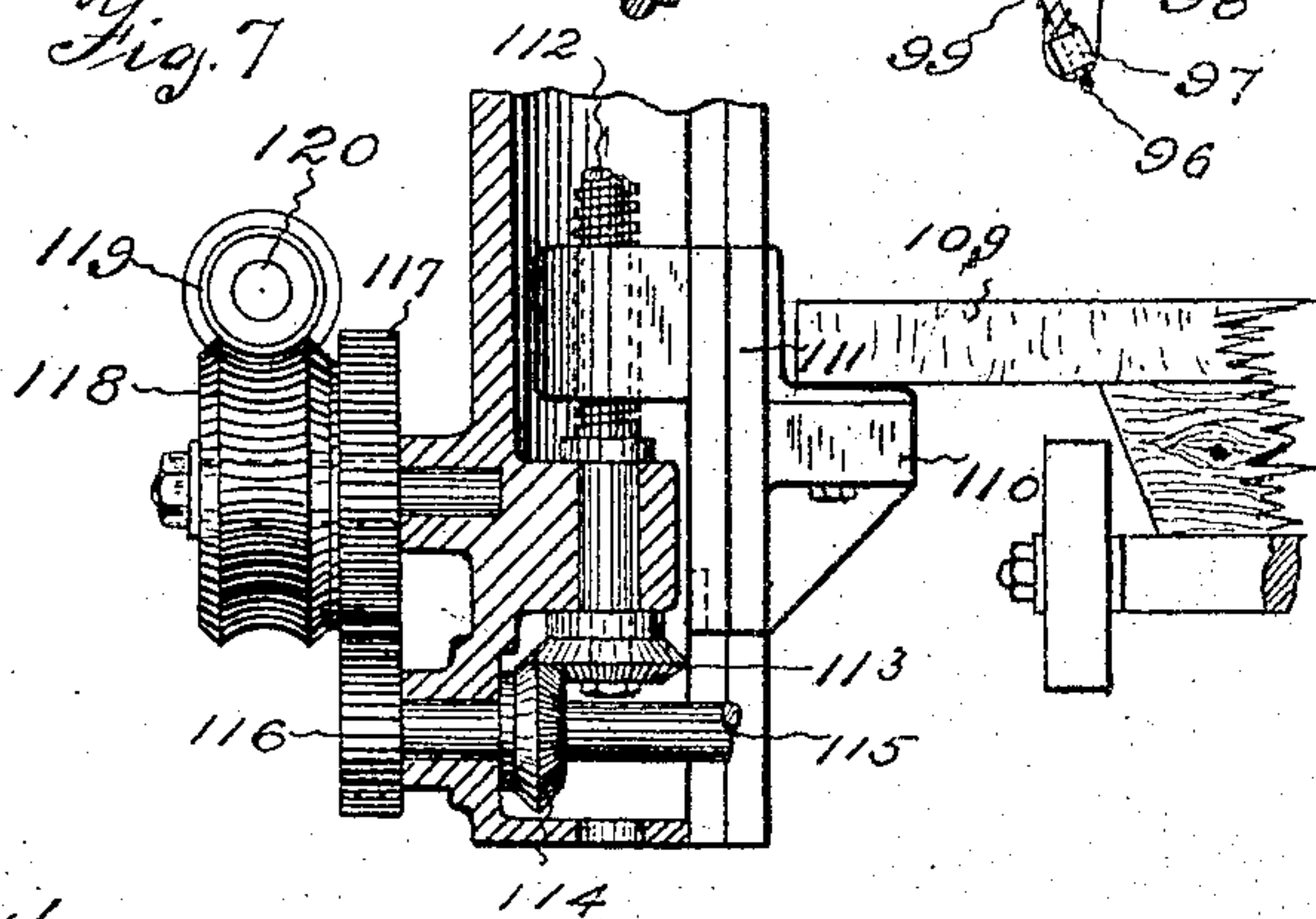
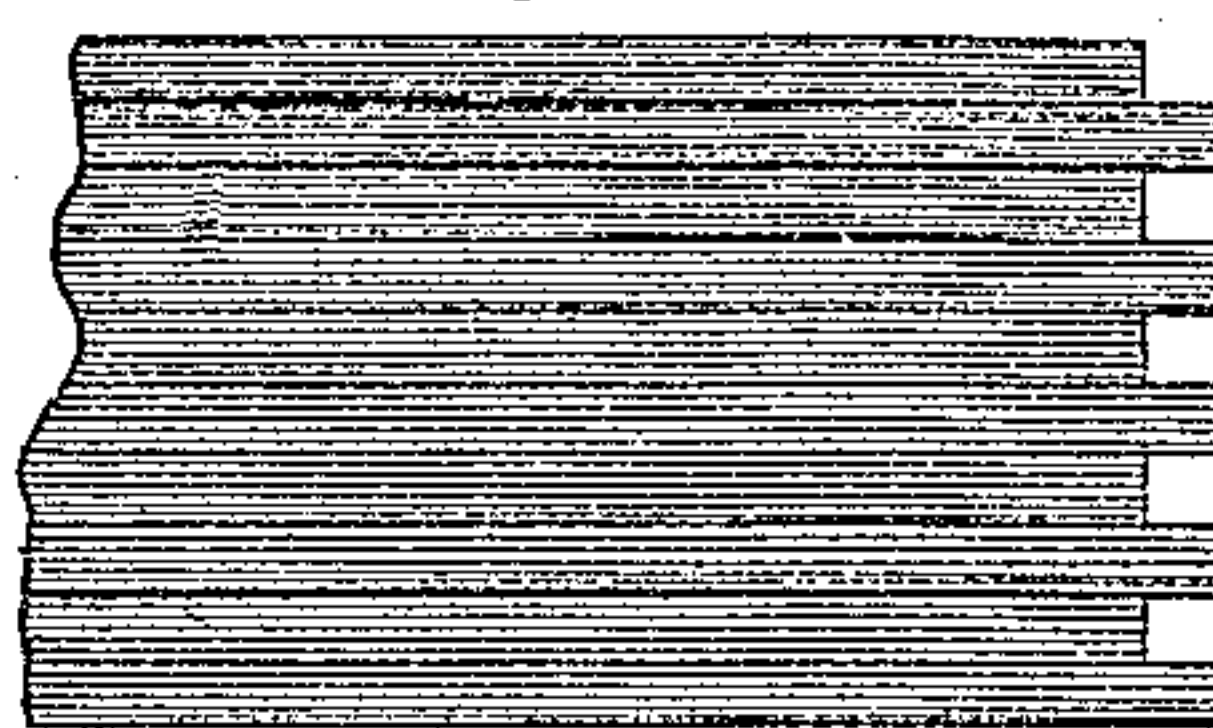


Fig. 8



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UNITED STATES PATENT OFFICE.

CHARLES F. TAYLOR, OF HARTFORD, AND GEORGE M. McCLELLAN, OF EAST HARTFORD, CONNECTICUT; SAID McCLELLAN ASSIGNOR TO SAID TAYLOR.

PAPER-RULING MACHINE.

SPECIFICATION forming part of Letters Patent No. 764,643, dated July 12, 1904.

Application filed July 18, 1903. Serial No. 166,179. (No model.)

To all whom it may concern:

Be it known that we, CHARLES F. TAYLOR, residing at Hartford, and GEORGE M. McCLELLAN, residing at East Hartford, in the county of Hartford and State of Connecticut, citizens of the United States, have invented certain new and useful Improvements in Paper-Ruling Machines, of which the following is a specification.

10 This invention relates to a machine for ruling lines upon continuous webs of paper as they are drawn from rolls for further manipulation.

15 The object of the invention is to provide a machine which may be operated at a reduced rate of speed, so as to perform high-grade work, but which will turn out a large quantity of work in a given time and in a more desirable condition than prior similar machines.

20 The machine illustrated in the accompanying drawings as embodying the invention is constructed to rule both sides of a plural number of webs of paper as they are drawn from 25 rolls and fed all together to a cutter, which cuts the webs simultaneously into sheets of the required size and delivers the sheets to a mechanism which counts and piles together the desired number of sheets in condition to 30 be removed without mixing the count.

Figure 1 is an elevation, on greatly-reduced scale, of part of the machine, showing the general location, arrangement, and connection of the mechanisms. Fig. 2 is an elevation, on 35 larger scale, of one of the ruling-sections and the cutter-section of the machine. Fig. 3 is an elevation, on larger scale, of the sheet counting and piling mechanisms. Fig. 4 is an elevation, on still larger scale, of the counting mechanism. Fig. 5 is a plan of part of 40 the counting mechanism. Fig. 6 is an edge elevation of part of the counting mechanism. Fig. 7 is an elevation of a part of the platform-elevating mechanism. Fig. 8 shows the 45 manner of piling the sheets so as to preserve the count. Fig. 9 is a side elevation of the grasping-jaws of the piling mechanism. Fig. 10 is a side elevation of the jaw-opener ad-

50 jacent to the cutter. Fig. 11 is a side elevation of the jaw-opener at the delivery end of the machine. Fig. 12 is an edge elevation of the paper-guide and tension device. Fig. 13 is a front elevation of the paper-guide and tension device with a portion cut in section to show the construction.

55 Fig. 1 of the drawings shows the general arrangement of mechanisms for ruling both sides of webs of paper drawn from three rolls simultaneously and fed together to a single rotatory cutter; but the machine is preferably built for ruling both sides of either 60 five or six webs at the same time.

As shown in Fig. 2, each roll of paper 1 that is to be ruled is wound upon an arbor 2, which is held by a box 3, adjustably supported by 65 a standard 4 on each side of the machine. Each web passes from the roll to a pair of feed-rolls 5, that are held by boxes supported by brackets attached to the side frames 6. The lower of these feed-rolls has a beveled 70 gear 7, meshing with which is a beveled gear 8 on the lower end of a vertical shaft 9, that at the upper end has a beveled gear 10, which meshes with a beveled gear 11 on the shaft 12, that extends horizontally along the top of 75 the side frame, as shown in Fig. 2. By means of this mechanism the paper is drawn simultaneously and at the same rate of speed from all of the rolls. The paper is drawn from 80 each roll, so that there will be a little slack in front of the guide and tension device, as shown at the bottom of Fig. 2, for to guide paper properly one end must be loose.

Two guide-disks 13 are mounted on a rod 14, that is clamped in bearings in brackets 15, 85 bolted to the bottom of the frame. One of the disks is permanently fastened to the rod, and the other is fastened so that it may be moved longitudinally of the rod in order to 90 adjust the distance from disk to disk. Between the disks and preferably mounted on ball-bearings so as to turn easily are a pair of guide-sleeves 16, that have spiral ribs on their peripheries. These tend to carry the 95 paper to one side and keep an edge against the fixed guide-disk. A bar 17 is carried by

the disks adjacent to the ribbed guide-sleeves, and the paper passes between these. When the screw 18 is loosened and the rod is unclamped, the disks may be rotated, so that the desired tension is placed upon the paper as it passes between the rolls and bar, Figs. 2, 12, and 13. Each web after passing the guide travels between rods 19, that extend across the machine and have their ends supported by lazy-tongs 20, the upper ends of which are fastened to the side frames, while the lower ends are adjustable up and down the frames, so that the spaces between the rods may be varied to adjust the tension upon the web, Fig. 2. From the tension device each web passes over a pen-roll 21, where one side of the web is ruled by pens 22 and then passed around a pen-roll 23, where the other side is ruled by pens 24. The pens are of common form and arrangement and are inked in the usual way. While pens are represented, the ruling can be as well accomplished by the ordinary inking-disks commonly used in ruling-machines. The webs then pass over rolls 25, supported on top of the frames, and are all drawn together over a feed-cylinder 26, bearing against which with an adjustable yielding pressure are the rolls 27, Figs. 1 and 2. On the shaft of the feed-cylinder 26, which is driven by any common means and is supported in bearings mounted on the top of the cutter-frame, is a beveled gear 28, that meshes with the beveled gear 29 on the end of a shaft 30, that is joined with the end of the shaft 12, that extends along the top of the frame and drives the feed-rolls of the ruling mechanisms, Fig. 2. By this means the feed-rolls of the ruling mechanisms and the feed-roll adjacent to the cutter are rotated together at a uniform rate of speed. The plural number of webs lying one upon the other are fed over the fixed blade 31 and are cut into sheets by the rotary blade 32 on the cylinder 33, that is driven by any suitable means. The shaft of the cutter-cylinder 33 is supported in bearings mounted on the cutter-frame and has a beveled gear 34 meshing with a beveled gear 35 on the upper end of a vertical shaft 36, the lower end of which has a beveled gear 37 in mesh with a beveled gear 38 on the horizontal shaft 39, Fig. 2. The sheets which are severed from the webs feed onto an endless apron 40 beneath a roll 41 and are passed to the counting and piling mechanisms, Figs. 1 and 2. A lever 42 is pivoted to the lower part of each side of the counting-mechanism frame 43. A link 44 connects one of these levers with a crank 45, secured to a shaft 46. On this shaft is a beveled gear 47, meshing with a beveled gear 48 on the horizontal shaft 39, Fig. 3. By this means the levers on opposite sides of the frame are oscillated at a speed always proportional with the speed of revolution of the movable blade of the cutter.

On the upper edge of each of the side frames that support the counting mechanism is a way

49, movable along which is a slide 50. The slides on opposite sides are rigidly connected by a transverse bar 51, and are joined with the ends of the levers 42 by links 52, Fig. 3. The transverse bar 51 is provided with jaws which are opened and closed for grasping the bunches of sheets as they are delivered by the apron 40 and for drawing the sheets upon the top of the platform that supports the piles. Two or more jaws 53 are rigidly fastened to the transverse bar that connects the slides and to each of these a jaw 54 is pivoted. A spring-plunger 55 is arranged to close the pivoted jaw against the rigid jaw. Projecting from the side of each movable jaw is a pin 56, Fig. 9.

A bar 57 is fastened to the edge of the counting-frame adjacent to the delivery end of the apron 40, Fig. 3. Pivoted to this fixed bar so as to project toward each movable jaw is a finger 58, with a wedge 59. These fingers are prevented from moving upwardly by engagement with the bar, but are allowed a downward movement by the spring 60, Fig. 10. For a time, near the end of the forward movement of the paper-grasping jaws, the pins 56 engage the wedges 59 and open the pivoted jaws. After the edges of the sheets of paper are between the jaws the pins disengage from the wedges and allow the jaws to close and grasp the sheets. As the jaws are drawn backward with the sheets the wedge ends of the opening-fingers yield downwardly.

Held by a guide 61, fixed to the top edge of each side frame 43, is a slide 62. These slides are rigidly joined by a bar 63, Fig. 3. Pivoted to this movable bar so as to project toward each movable jaw is a finger 64 with a wedge 65. These fingers are prevented from moving upwardly by engagement with the bar, but are allowed to move downwardly by springs 66, Fig. 11. For a short time, near the end of the backward movement of the grasping-jaws, the pins 56 engage the wedges 65 and open the pivoted jaws, so they will leave the sheets of paper. After the sheets have been dropped from the jaws the pins disengage from the wedges and the jaws close. As the jaws move forwardly the wedge ends of the opening-fingers yield downwardly.

A shaft 67 extends across the top of the frame 43 and near each end has an eccentric 68, that is connected by a link 69 with a finger-slide 62, Figs. 4 and 5. When the eccentrics move the slides and bar forward, the fingers open the grasping-jaws a little sooner than when the eccentrics draw the slides and bar backward. The eccentrics are rotated at predetermined intervals, so that the jaws are opened alternately in two different positions. The mechanisms are adjusted so that the eccentrics will be rotated after a certain number of reciprocations of the jaws, so that a desired number of sheets will be piled with their edges in one plane, and then the same number of sheets will be piled with their edges in another

plane. This leaves the sheets piled in bunches of the desired number with the edges of each alternate bunch overhanging, as shown in Fig. 8, so that the bunches may be removed for further use without breaking the count. If there are five ruling mechanisms and five webs of paper, at each reciprocation of the jaws five sheets are piled on the platform. If there are six ruling mechanisms and six webs of paper, at each reciprocation of the jaws six sheets are piled on the platform. The machine can be so adjusted that after a certain number of reciprocations of the jaws have piled the desired number of sheets in a bunch the jaw-opening fingers are moved, so that the same number will be piled in another bunch with their edges in a different plane. By means of this mechanism the bunches are piled with the number of sheets in each bunch which are required for some further use.

On the shaft 67 is a sprocket-wheel 70, and loose on a short shaft 71 on the inside of the frame is a sprocket-wheel 72. A chain 73 passes around these sprocket-wheels, Figs. 4, 5, and 6. The sprocket-wheel 72 is located between two friction-disks 74, that are splined on the shaft 71 and are squeezed together by a spring 75, Fig. 6. When unlocked, the shaft 67 is rotated by the sprockets and chain driven by the friction-disks. On the shaft 71 is a beveled gear 76, meshing with a beveled gear 77 on a vertical shaft 78, Figs. 4 and 5. The shaft 78 is driven from the horizontal shaft 39 by beveled gearing 79, Fig. 3. This mechanism rotates the friction-disks continuously.

Fastened on the shaft 67 is a locking-disk 80 with two bolt-notches 81. In a block 82, attached to the side of the frame, is a bolt 83. Extending outwardly from the lower end of this bolt is a pin 84, Figs. 4 and 6. On the disk 87 are a pair of plungers 88, that are forced outwardly by springs 89. One plunger-support is shown as screwed to the face of the disk, while the other is pivoted on the axis of the disk, so that it may be adjusted, Figs. 4 and 6. In the inner faces of these plungers is a mortise 890, that when the plunger is brought into a vertical position receives the pin 84, that projects from the locking-bolt, so that by means of the pin and the mortise the plunger and bolt are joined together, Figs. 4 and 6. When joined together, the depression of a plunger withdraws the bolt from a locking-notch and allows the shaft 67 to be rotated by the friction-disks and the sprockets and chain. When the bolt is in a locking-notch, the shaft 67 is held against movement. Pivoted to the side of the frame is a lever 90, one end of which is adapted to engage the upper ends of the plungers when they are in a vertical position and the other end of which is adapted to be engaged by the cam 91 on the shaft 71, Figs. 4 and 5. At each rotation of the cam the lever is oscil-

lated; but the lever does not withdraw the bolt unless a plunger is in a vertical position and connected with the bolt.

Around the periphery of the disk 87 are notches 92, and pivoted on a bar 93, that is movable horizontally on the frame, is a double ratchet 94, which when in one position has one end in engagement with the notches of the disk and when in the other position has the other end in engagement with the notches of the disk. The stem 95 of the ratchet is connected with a rod 96, that passes through a block 97, that is mounted on a bracket 98, attached to the bar 93. On the rod is a spring 99, that thrusts between the block and a collar 100 on the rod and holds either one end or the other of the ratchet in engagement with the notches on the disk, Figs. 3 and 4.

On the bar 93 is a roll 101 and a roll 102 in the path of the lever 42. The lever 42 near one end of its stroke engages with the roll 101 and pushes the bar in one direction and near the other end of its stroke engages the roll 102 and pushes the bar in the opposite direction, Fig. 3. When one end of the ratchet is in engagement with the notches on the disk, the disk and the locking-bolt plungers are fed intermittently in one direction, and when the other end of the ratchet is in engagement with the notches the disk and locking-bolt plungers are fed in the opposite direction by the oscillations of the lever 42 and the reciprocations of the bar 93. By this means a certain number of reciprocations of the lever 42 and the grasping-jaws are made before one of the plungers gets in position to engage a locking-bolt, so that the locking-bolt will be released and will allow the shaft 67 to be rotated to change the position of the opening-fingers at the discharge end of the machine.

On the shaft 67 is a cam 103, that is engaged by rolls on the end of a yoke 104, that is pivoted to the frame. Projecting from the yoke-arms 105 are wires 106, that pass through a guide-bar 107 and have their lower ends located adjacent to pins 108, that project from the ends of the ratchet 94. At each rotation of the shaft 67 the cam oscillates the yoke, which by means of the wires oscillates the ratchet, so that one end is disengaged and the other end is engaged with the notches on the periphery of the disk for the purpose of changing the direction of feed, Figs. 4 and 6. When the shaft 67 is turned, the position of the jaw-opening fingers is changed, and then the ratchet is changed, so that the index-disk will be fed in the opposite direction. One of the locking-bolt plungers is fixed with relation to the disk, while the other is adjustable about the disk, so that the number of intermittent steps which may be given to the disk may be varied. By reason of this any desired number of sheets may be piled in a bunch before the position of the opening jaws is changed to pile the succeeding sheets with their edges in another plane.

The sheets are piled on a platform 109, that is supported by lugs 110 on blocks 111, that are movable up and down each side of the frame by the rotation of the screws 112, Fig. 7. On the lower end of each screw 112 is a bevel-gear 113, meshing with which is a beveled gear 114 on a shaft 115, that extends across the machine. On the shaft 115 is a pinion 116, that meshes with a gear 117, that is fastened to a worm-wheel 118, that is in mesh with a worm 119 on a shaft 120, that has a cone-pulley 121, around which passes a belt from a cone-pulley 122 on the shaft 39, Figs. 3 and 7. One end of the shaft 120 is supported by a box 123, that is pivoted to the frame, while the other end is supported by a box 124, that is pivoted to a lever 125. The lever is held against movement by a link 126. When this lever is in one position, the worm is engaged with the worm-wheel, and when the lever is in another position the worm is disengaged from the worm-wheel, Fig. 3. By means of the worms and gears the platform is lowered, the speed of movement being varied by shifting the belt upon the cone-pulleys to allow for paper of different thicknesses. When the worm is disengaged from the worm-wheel, the platform may be raised quickly. If five or six webs are being ruled on both sides and fed together past the cutter, at each reciprocation of the grasping-jaws a number of sheets corresponding to the number of webs are drawn onto the platform. The number of reciprocations of the grasping-jaws before the position of the opening-fingers is changed determines the number of sheets that are placed in a pile before they are changed, so that the edges are in a different plane. If five webs are used, five sheets are laid out each time, and if there are five reciprocations of the grasping-jaws before the positions of the opening-fingers are changed twenty-five sheets will be deposited in each overlaid bunch. The number of sheets drawn out each time depends upon the number of webs that are ruled at once, and the number of sheets laid with their edges in the same plane is only limited by the number of notches in the index-disk.

This machine may be run slowly, so that the ruling will be accomplished satisfactorily, the cutting will be accurate, and the piling will be true, yet a large quantity of work is turned out in a given time. With this manner of piling the sheets the count is preserved and the operator merely picks up the bunches by the overlaid edges and counts the overlays and immediately calculates the number of sheets from the number of overlays.

If six webs are ruled at the same time, six sheets are severed at each movement of the cutter and left in proper condition to be immediately folded or transferred to some other machine and folded. Of course the plural number of webs from the inking mechanism may be carried to a rewinding-roll and from

the rewinding-roll delivered to the cutter or to a folder, or of course the plural number of webs could be delivered immediately to a folding mechanism and then cut after having been folded. If six webs ruled in this manner should be delivered to a folding mechanism and then cut on one edge, the desired number of sheets for use in making up books or packages of writing-paper are bunched ready for use. With this machine a plural number of sheets of paper are delivered at each reciprocation of the grasping-jaws, and yet the machine may be run as slowly as if only one sheet were being delivered at each time; but of course the speed of the machine is determined by the quality of paper being ruled.

This machine is particularly adapted for ruling paper which is to be used for forming tablets, for note-paper, ream-goods, composition-books, or any books which require any predetermined number of sheets, but which usually are made of signatures containing six or a multiple of six sheets.

The invention claimed is—

1. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, feed-rolls adjacent to each support for drawing the web of paper from each roll, a guide and tension device for controlling each web after it has been drawn out by the feed-rolls, a pair of idle pen-rolls over and under which each web passes from a guide and tension device, ink-ruling means adjacent to each pen-roll, means for leading all of the webs together, and a single feed mechanism for drawing all of the webs as one piece after they have been led together, substantially as specified.

2. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, feed-rolls adjacent to each support for drawing the web of paper from each roll, a guide and tension device for controlling each web after it has been drawn out by the feed-rolls, a pair of idle pen-rolls over and under which each web passes from a guide and tension device, ink-ruling pens adjacent to each pen-roll, means for leading all of the webs together, and a single feed mechanism for drawing all of the webs as one piece after they have been led together, substantially as specified.

3. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, feed-rolls adjacent to each support for drawing the web of paper from each roll, a guide and tension device for controlling each web after it has been drawn out by the feed-rolls, a pair of idle pen-rolls over and under which each web passes from a guide and tension device, ink-ruling means adjacent to each pen-roll, means for leading all of the webs together, a single feed mechanism for drawing all of the webs as one piece

after they have been led together, and a cutter for severing all of the webs simultaneously, substantially as specified.

4. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, feed-rolls adjacent to each support for drawing the web of paper from each roll, a guide and tension device for controlling each web after it has been drawn out by the feed-rolls, a pair of idle pen-rolls over and under which each web passes from a guide and tension device, ink-ruling means adjacent to each pen-roll, means for leading all of the webs together, a single feed mechanism for drawing all of the webs as one piece after they have been led together, a cutter for severing all of the webs simultaneously and an apron for delivering the sheets severed by the cutter, substantially as specified.

5. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, feed-rolls adjacent to each support for drawing the web of paper from each roll, a guide and tension device for controlling each web after it has been drawn out by the feed-rolls, a pair of idle pen-rolls over and under which each web passes from a guide and tension device, ink-ruling means adjacent to each pen-roll, means for leading all of the webs together, a single feed mechanism for drawing all of the webs as one piece after they have been led together, a cutter for severing all of the webs simultaneously, and mechanism for piling the severed sheets, substantially as specified.

6. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, a plural number of feeds for drawing the webs of paper from the rolls, a plural number of web-guides and tension devices, a plural number of ink-ruling devices, a feed for drawing all of the webs together as one piece from the inking devices, a cutter for severing all of the webs simultaneously, and mechanism for feeding a predetermined number of cut sheets alternately different distances so that the front edges of the alternate number of sheets overlap the front edges of the other sheets, substantially as specified.

7. A machine for ruling paper having a frame, paper-roll supports, web-feeding, guiding, tension and ink-ruling devices, a cutter for severing the webs into sheets, and mechanism for feeding a predetermined number of cut sheets alternately different distances so that the front edges of the alternate number of sheets overlap the front edges of the other sheets, substantially as specified.

8. A machine for ruling paper having a frame, paper-roll supports, web-feeding, guiding, tension and ink-ruling devices, a cutter for severing the webs into sheets, mechanism for feeding a predetermined number of cut

sheets alternately different distances so that the front edges of the alternate number of sheets overlap the front edges of the other sheets, a platform for holding the sheets, and means for raising and lowering the platform, substantially as specified.

9. A machine for ruling paper having a frame, paper-roll supports, web-feeding, guiding, tension and ink-ruling devices, a cutter for severing the webs into sheets, mechanism for feeding a predetermined number of cut sheets alternately different distances so that the front edges of the alternate number of sheets overlap the front edges of the other sheets, a platform for holding the sheets, and means connected with the cutter-operating mechanism for raising and lowering the platform, substantially as specified.

10. A machine for ruling paper having a frame, roll-supports, web-feeding, guiding, tension and inking devices, a cutter for severing the web into sheets, reciprocating jaws for grasping and piling the sheets delivered from the cutter, and means for opening the jaws in different planes, substantially as specified.

11. A machine for ruling paper having a frame, a plural number of roll-supports, a plural number of feeds for drawing the webs from the rolls, a plural number of adjustable guides and tension devices with rotatory sleeves having spiral guiding-ribs, a plural number of inking devices, a feed for drawing all of the webs together from the inking devices, and a cutter for severing all of the webs simultaneously, substantially as specified.

12. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, a guide and tension device for controlling each web of paper after it has been unwound from a roll, a pair of idle pen-rolls over and under which each web passes from a guide and tension device, ink-ruling means adjacent to each pen-roll, means for leading all of the webs together, and a single feed mechanism for drawing all of the webs as one piece after they have been led together, substantially as specified.

13. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, a guide and tension device for controlling each web of paper after it has been unwound from a roll, a pair of idle pen-rolls over and under which each web passes from a guide and tension device, ink-ruling means adjacent to each pen-roll, means for leading all of the webs together, a single feed mechanism for drawing all of the webs as one piece after they have been led together, a cutter for severing all of the webs simultaneously, and reciprocating jaws for grasping and piling the sheets delivered from the cutter, substantially as specified.

14. A machine for ruling paper having a frame, a plural number of roll-supports, a plu-

ral number of web-guides and tension devices, a plural number of inking devices, a feed for drawing all of the webs together from the inking devices, a cutter for severing all of the webs simultaneously, reciprocating jaws for grasping and piling the sheets delivered from the cutter, and means for opening the jaws in different planes, substantially as specified.

15. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, a plural number of feeds for drawing the webs of paper from the rolls, a plural number of web-guides and tension devices, a plural number of ink-ruling devices, means for leading all of the webs together, a single feed mechanism for drawing all of the webs as one piece after they have been led together, a cutter for severing all of the webs simultaneously, means for driving the single feed mechanism, and shafts and gearing connecting the single feed mechanism with each of the roll-feeds, substantially as specified.

16. A machine for ruling paper having a frame, a plural number of supports adapted to hold rolls of paper, a plural number of feeds for drawing the webs of paper from the rolls, a plural number of web-guides and tension devices, a plural number of ink-ruling devices, means for leading all of the webs together, a single feed mechanism for drawing all of the

webs as one piece after they have been led together, means for driving the single feed mechanism, shafts and gearing connecting the single feed mechanism with each of the roll-feeds, a cutter for severing all of the webs simultaneously, mechanism for piling the cut sheets delivered from the cutter, means for operating the cutter, and shafts and gearing connecting the cutter mechanism and the piling mechanism, substantially as specified.

17. A machine for ruling paper having a frame, a plural number of roll-supports, a plural number of feeds for drawing the webs from the rolls, a plural number of web-guides and tension devices, a plural number of inking devices, a feed for drawing all of the webs together from the inking devices, shafts and gearing connecting the feeds, a cutter, reciprocating jaws for grasping and piling the sheets delivered from the cutter, means for opening the jaws, shafts and gearing connecting the cutter and the jaw-operating mechanisms, and adjustable mechanism connected with the cutter mechanism for moving the jaw-opening means, substantially as specified.

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