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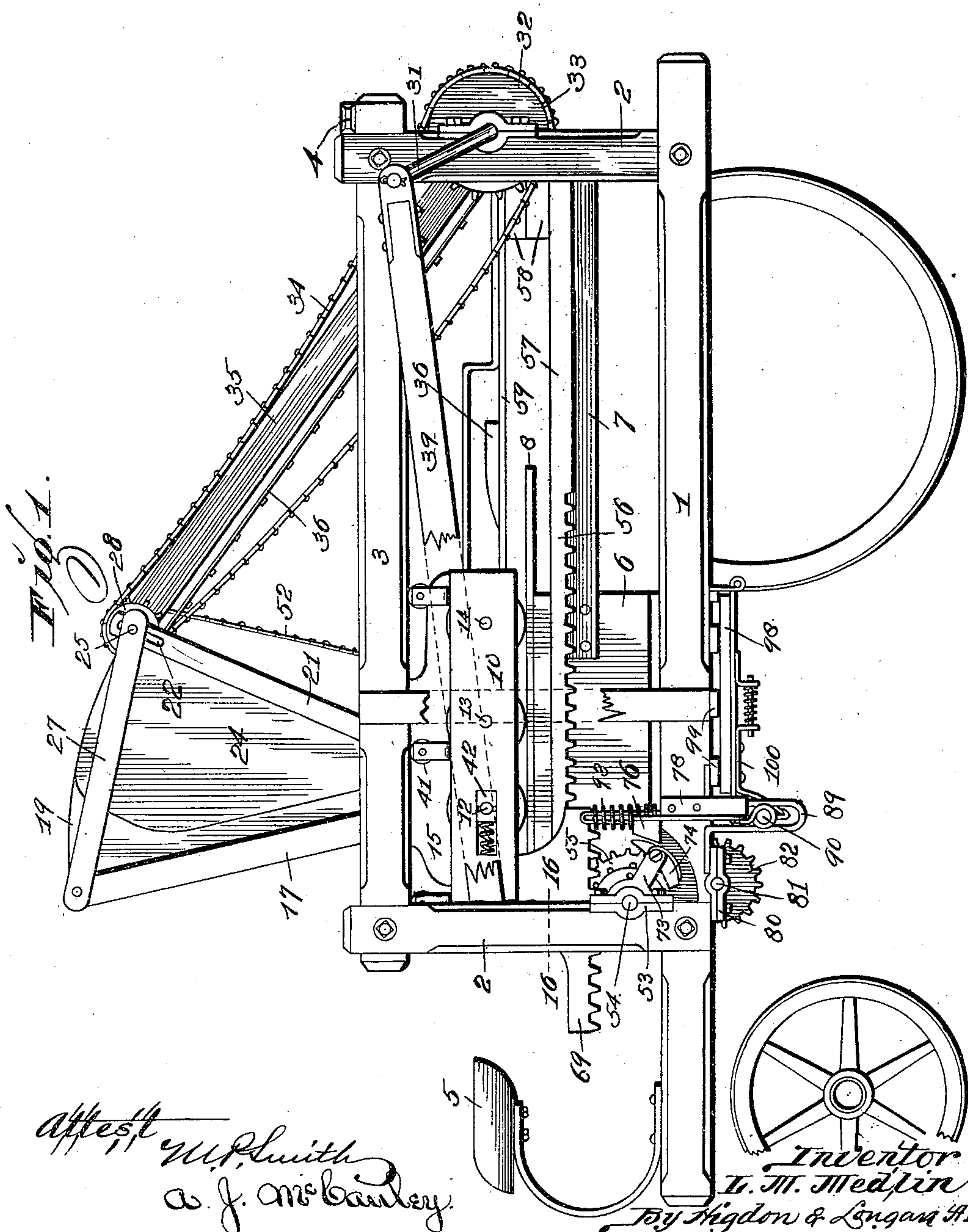
Patented Apr. 24, 1900.

L. M. MEDLIN.
BALING PRESS.

(Application filed Jan. 30, 1899.)

(No Model.)

6 Sheets—Sheet 1.



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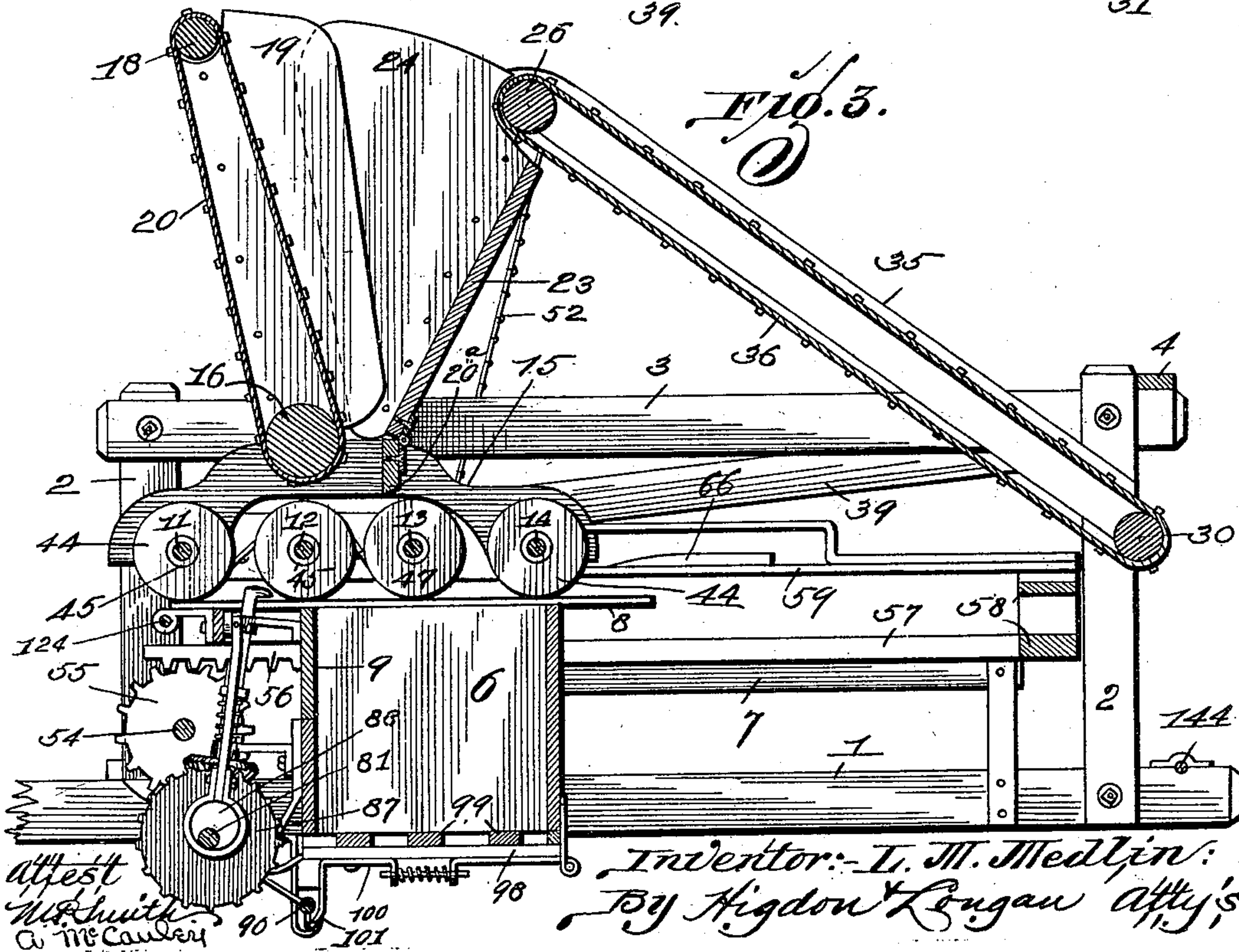
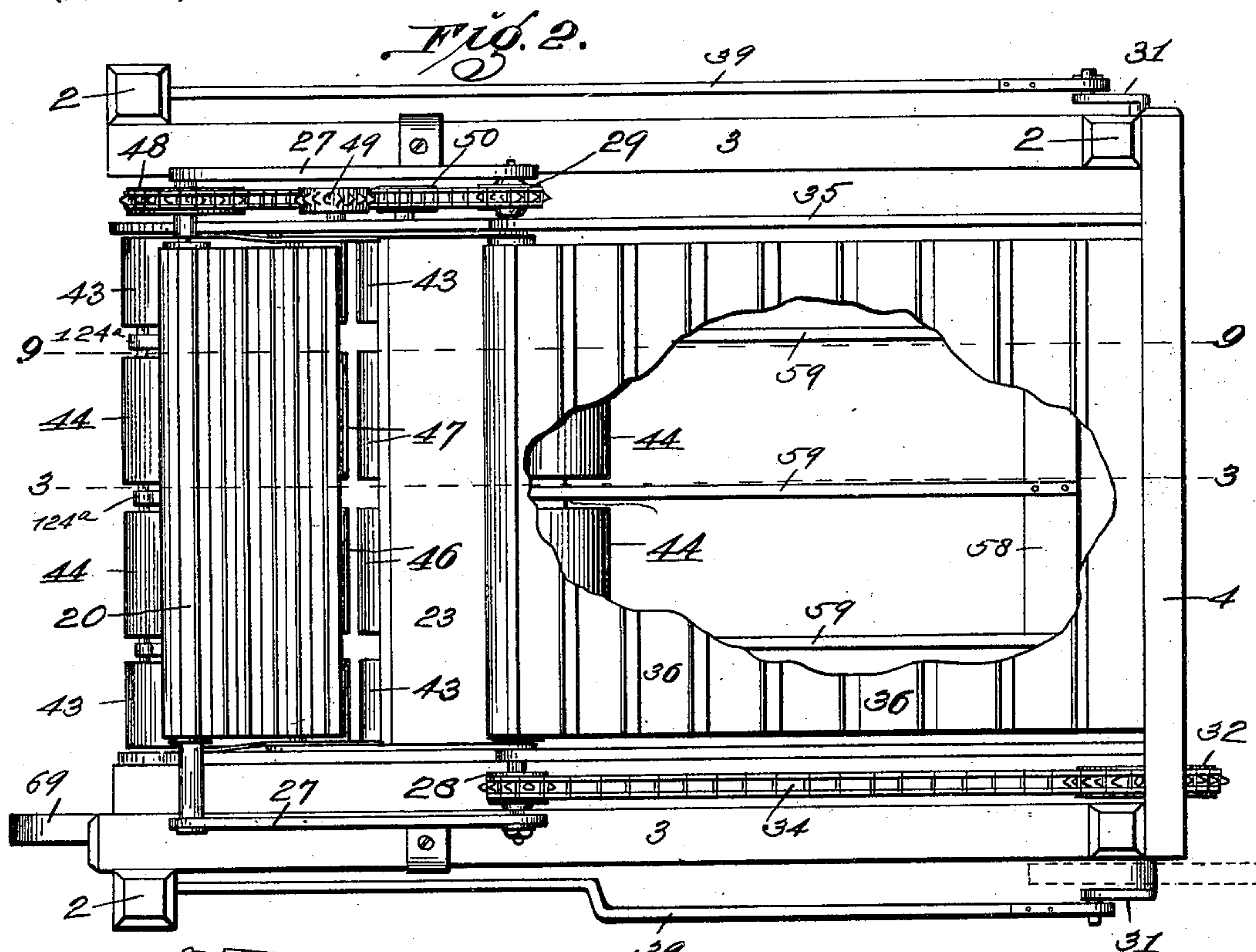
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6 Sheets—Sheet 2.



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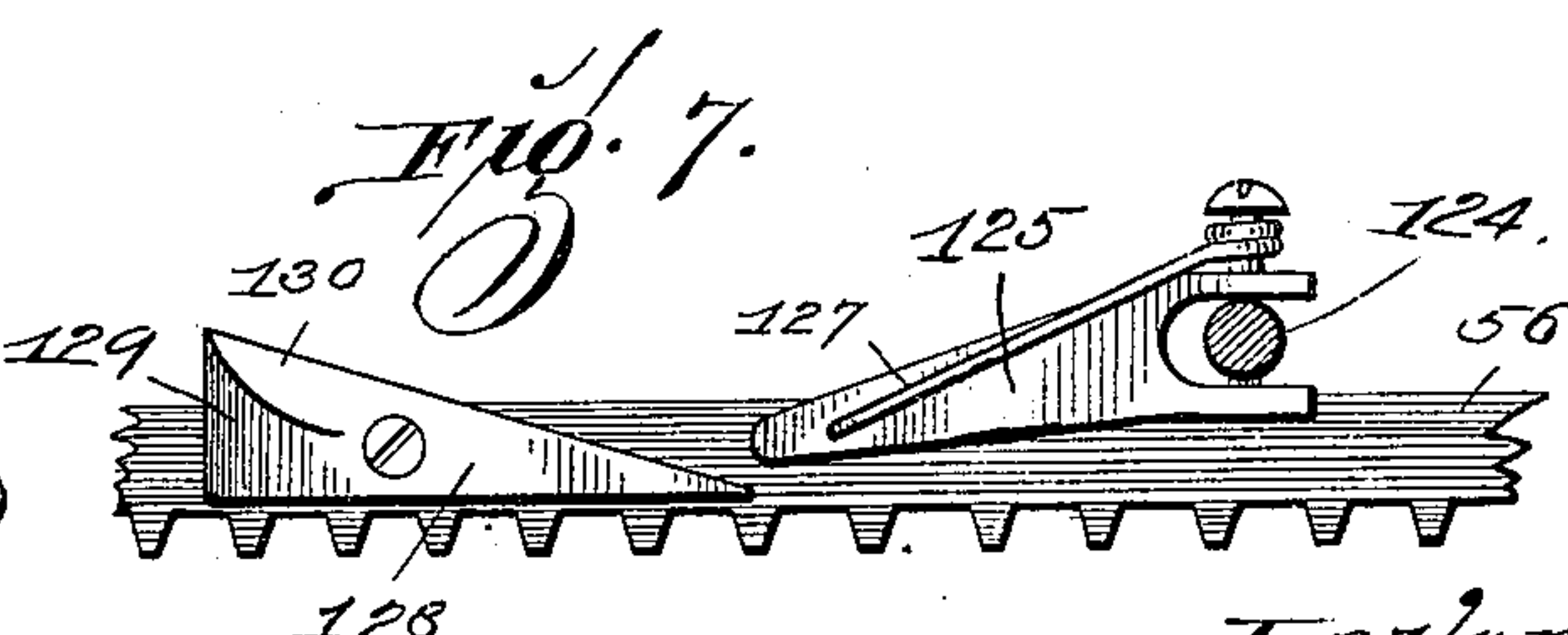
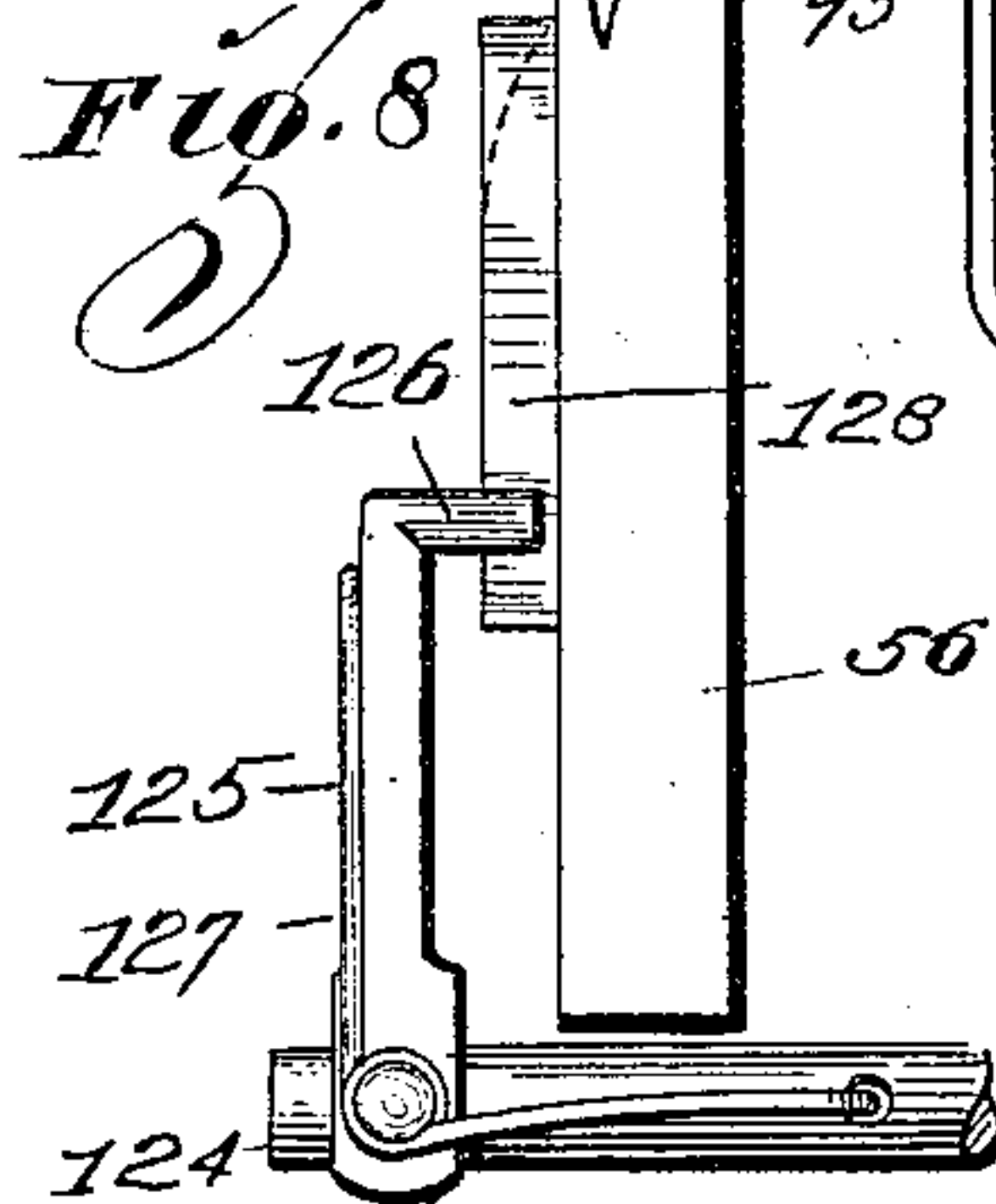
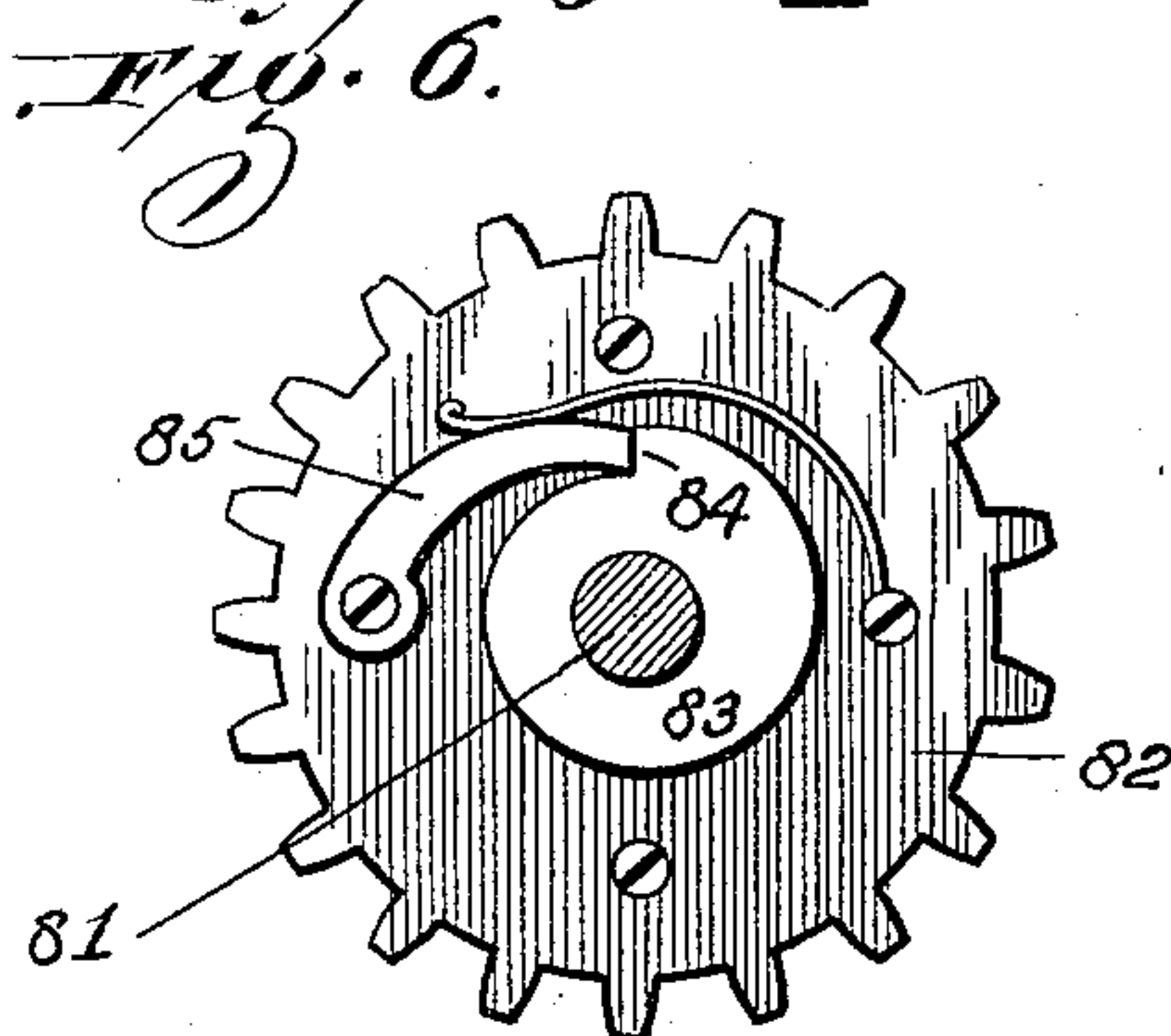
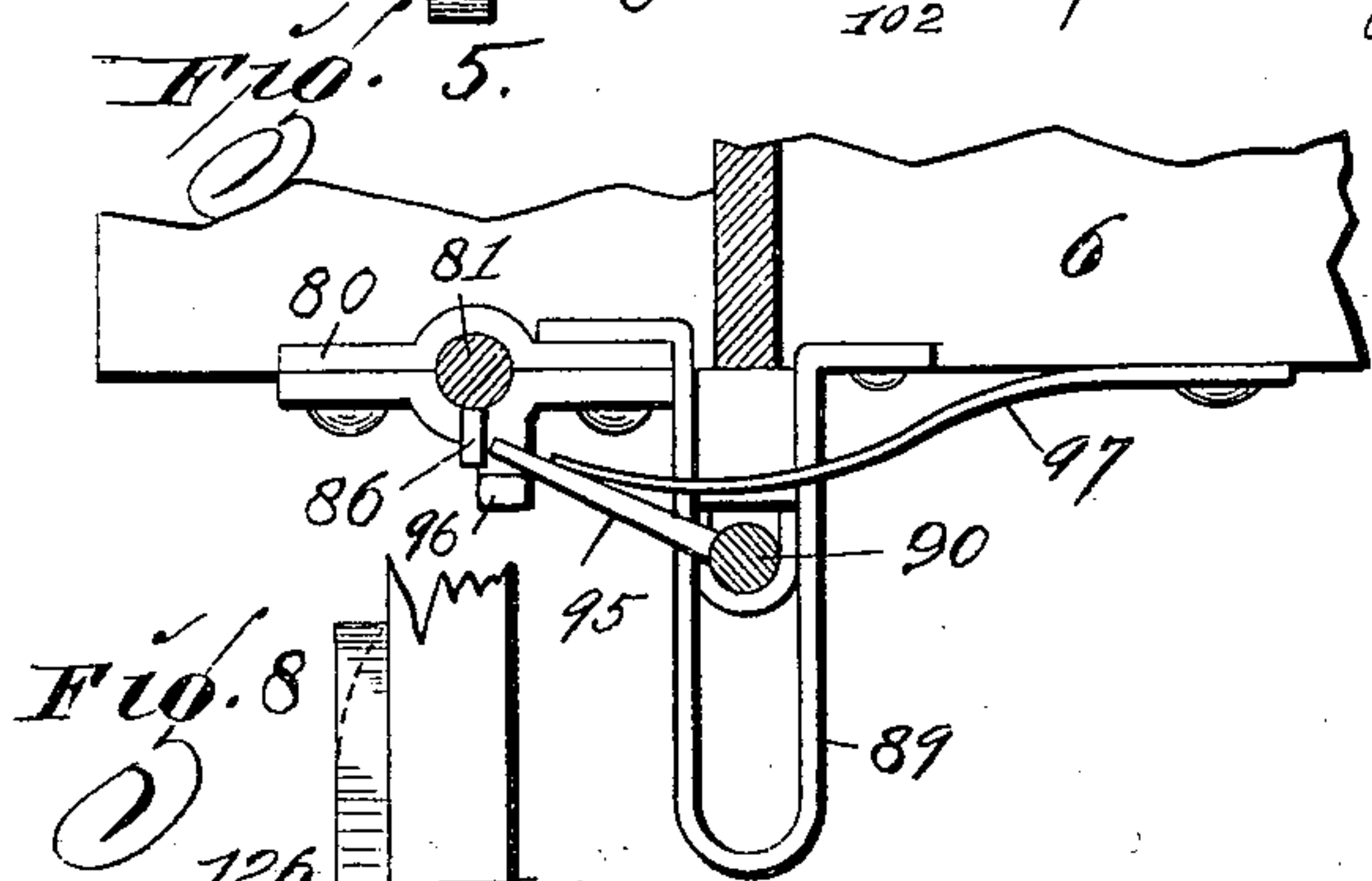
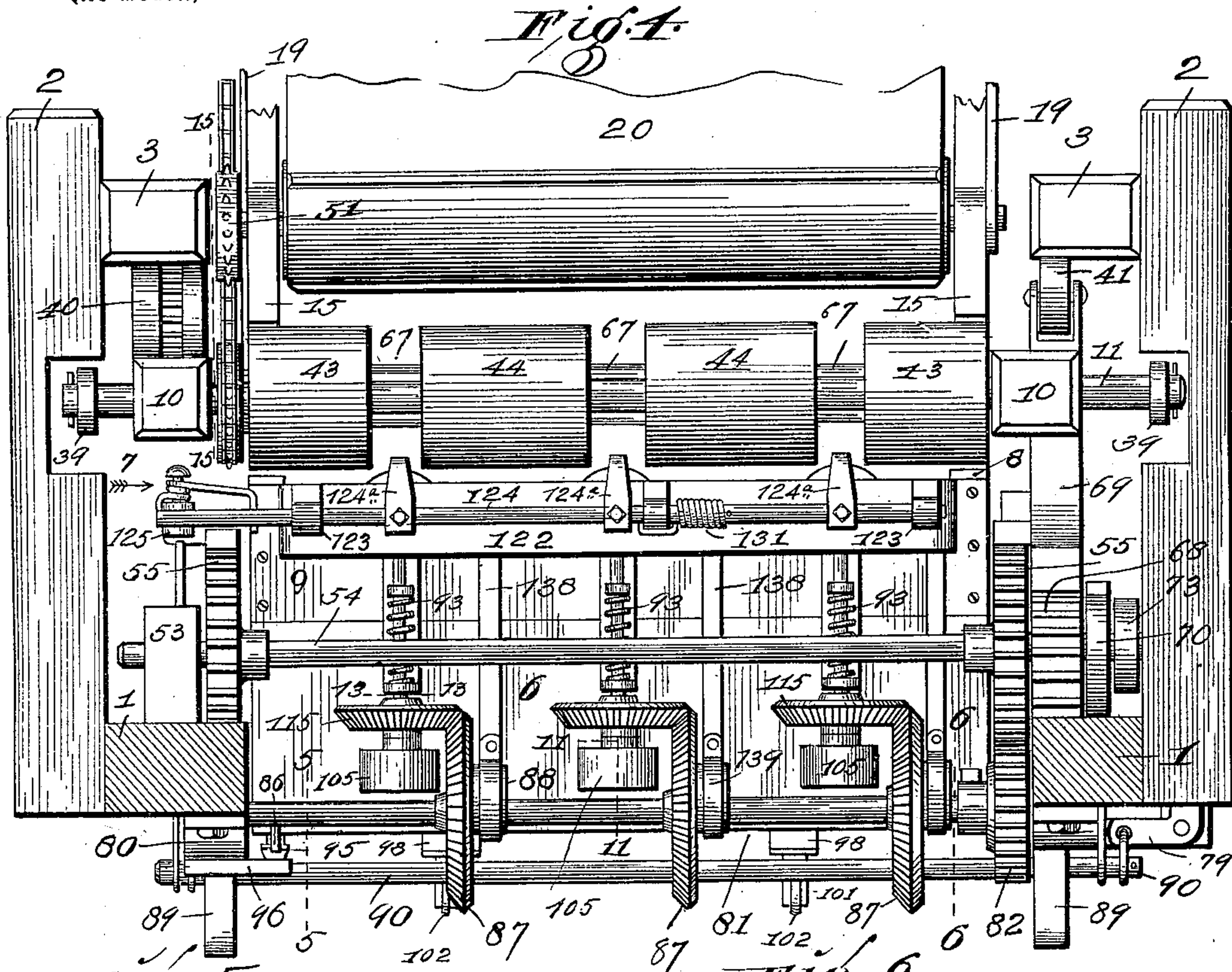
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6 Sheets—Sheet 3.



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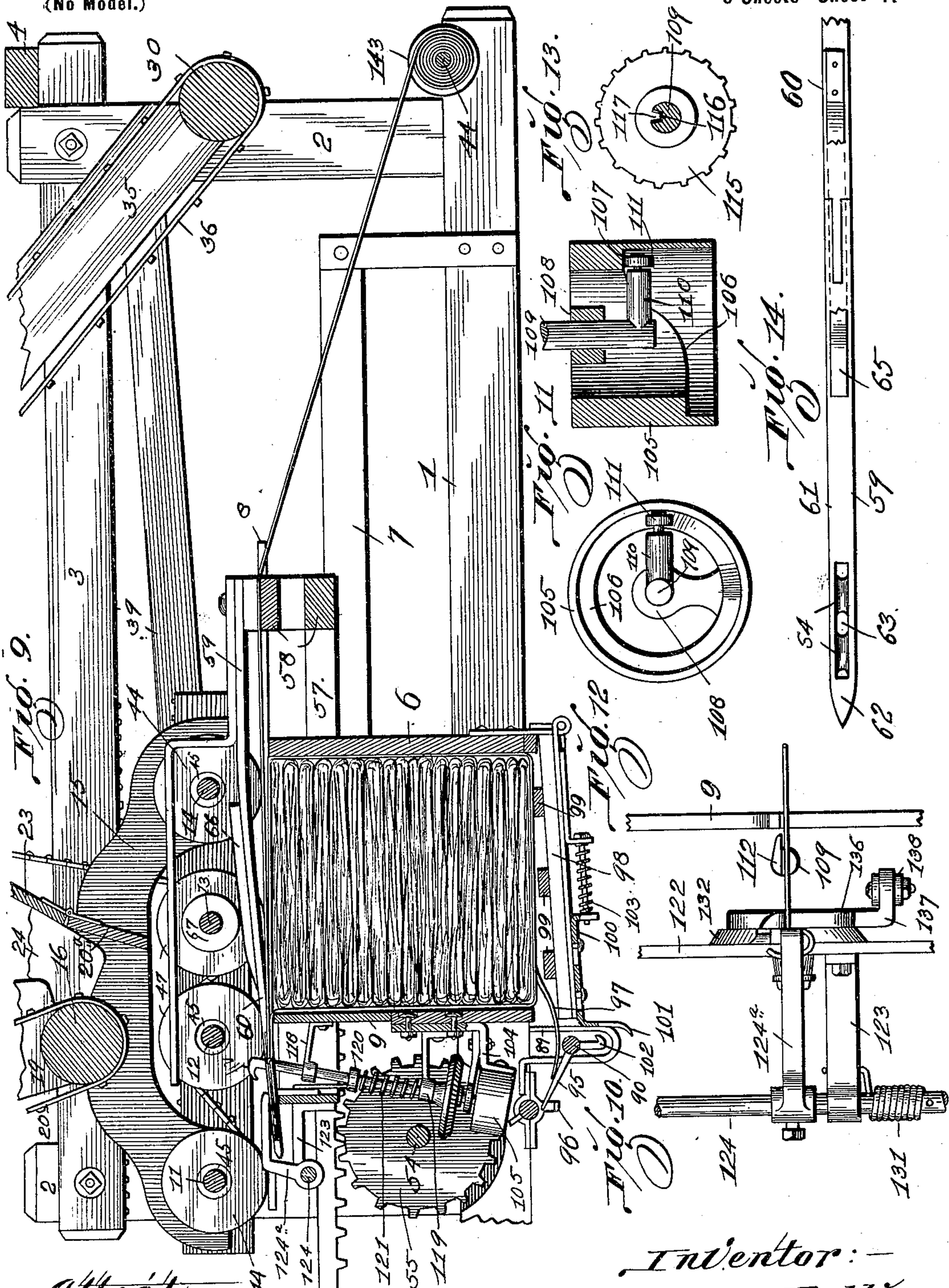
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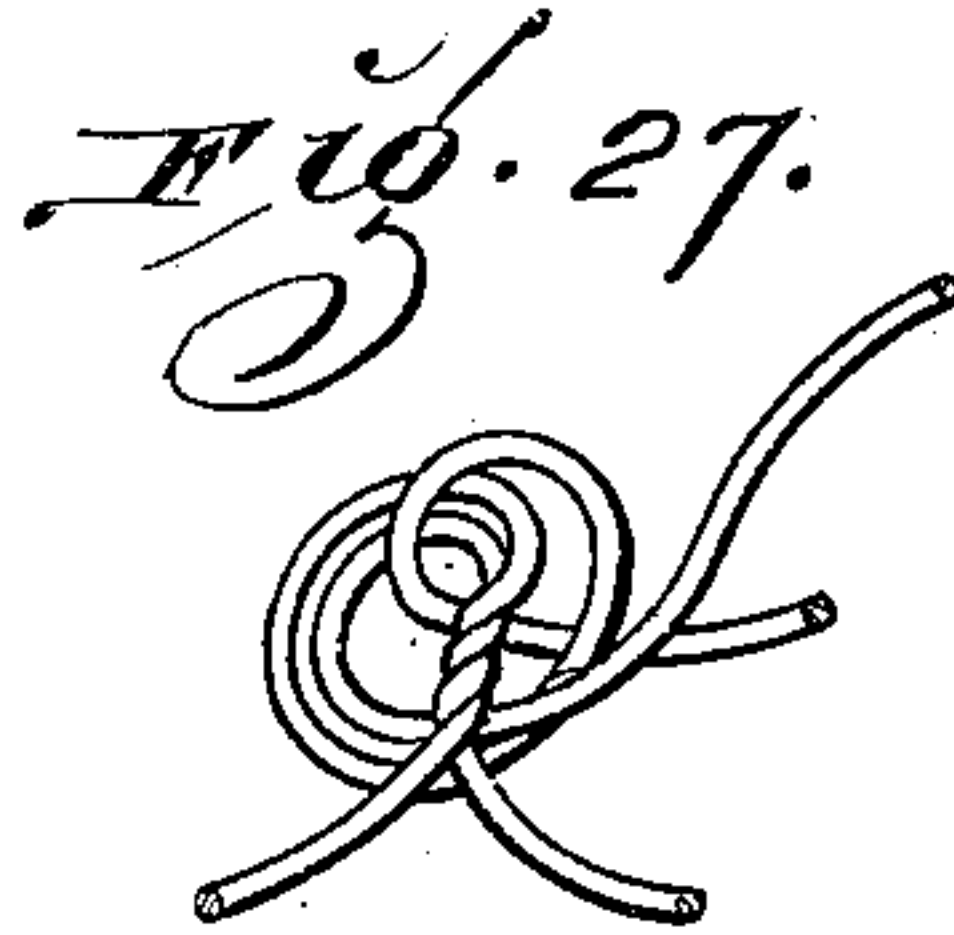
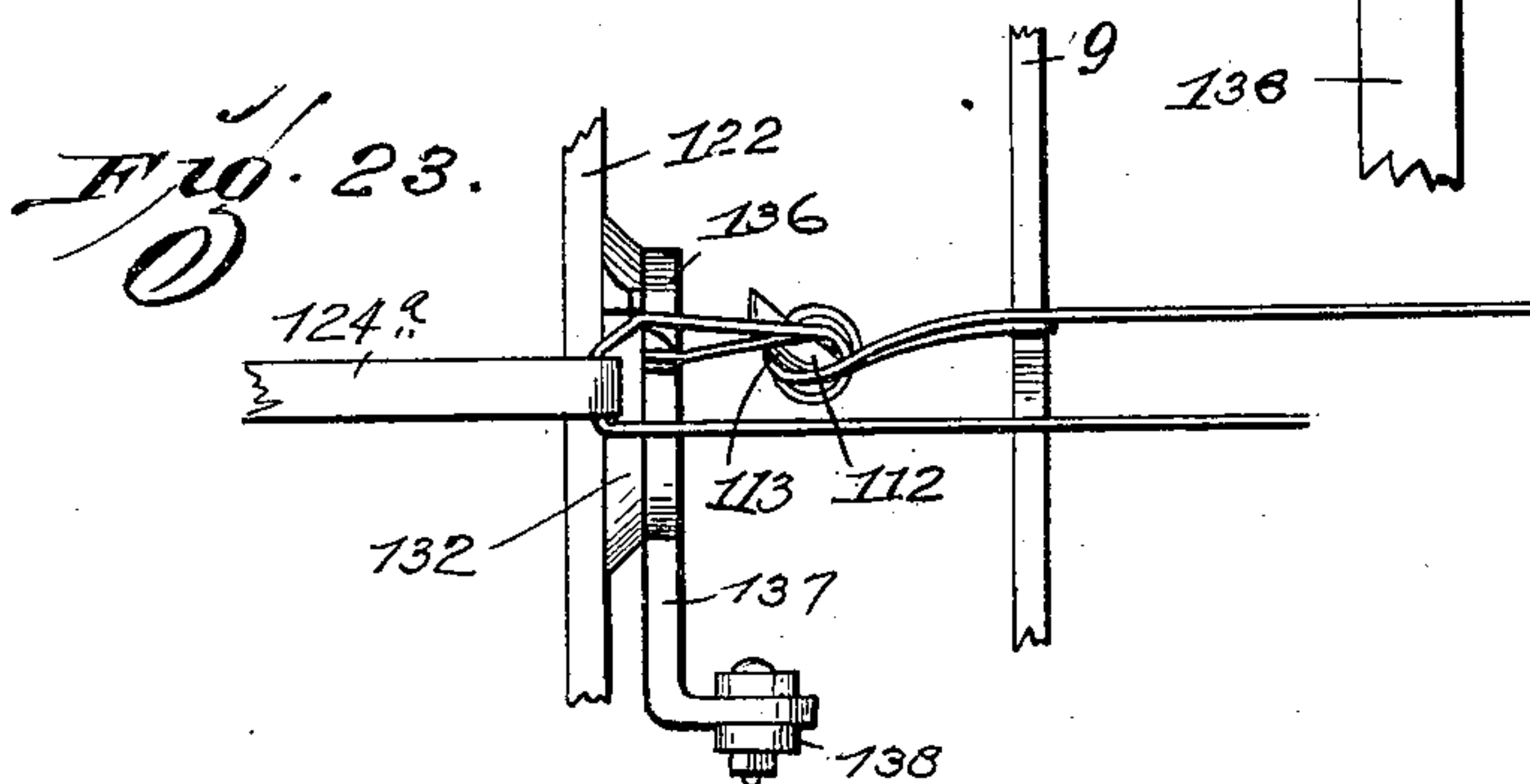
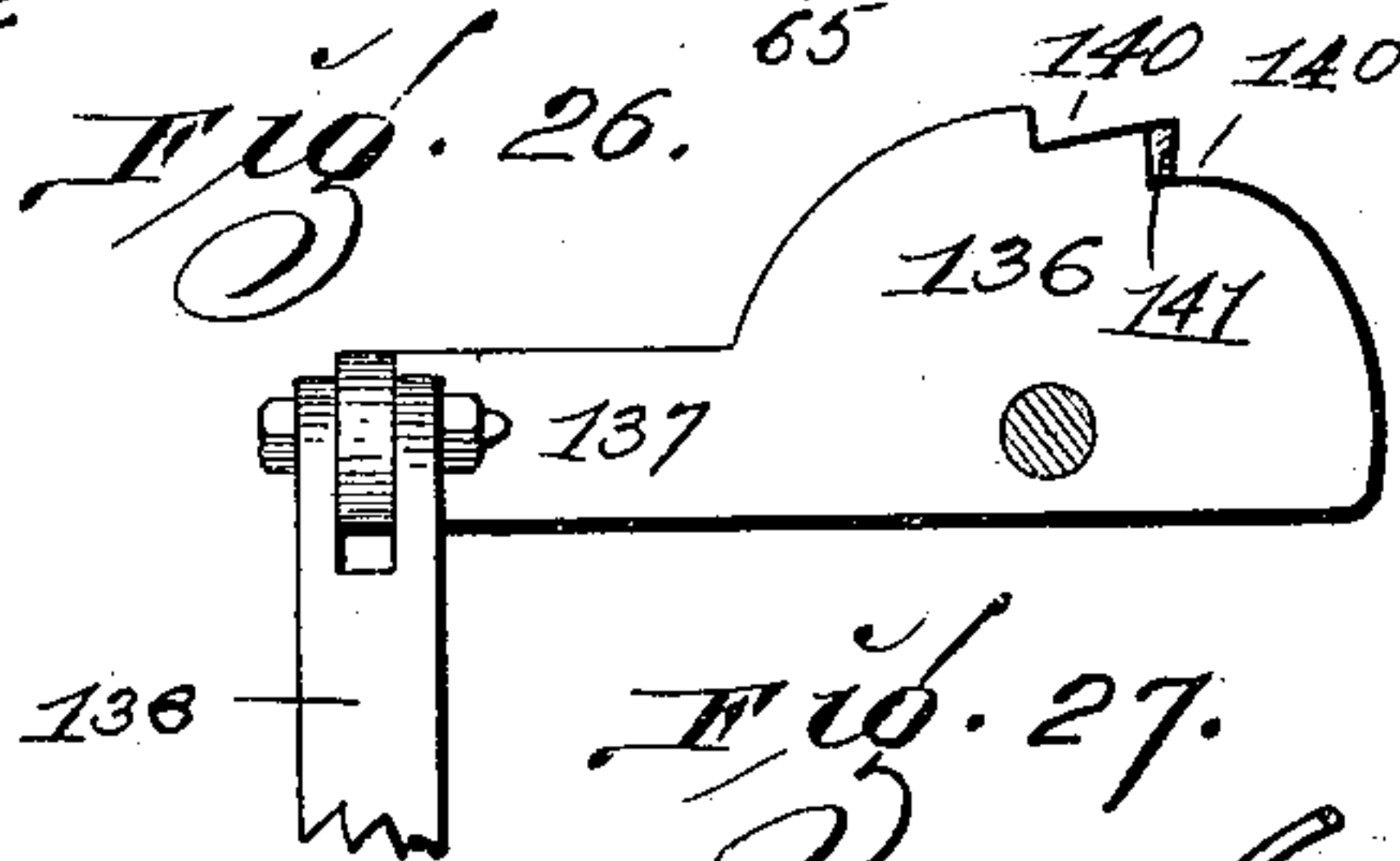
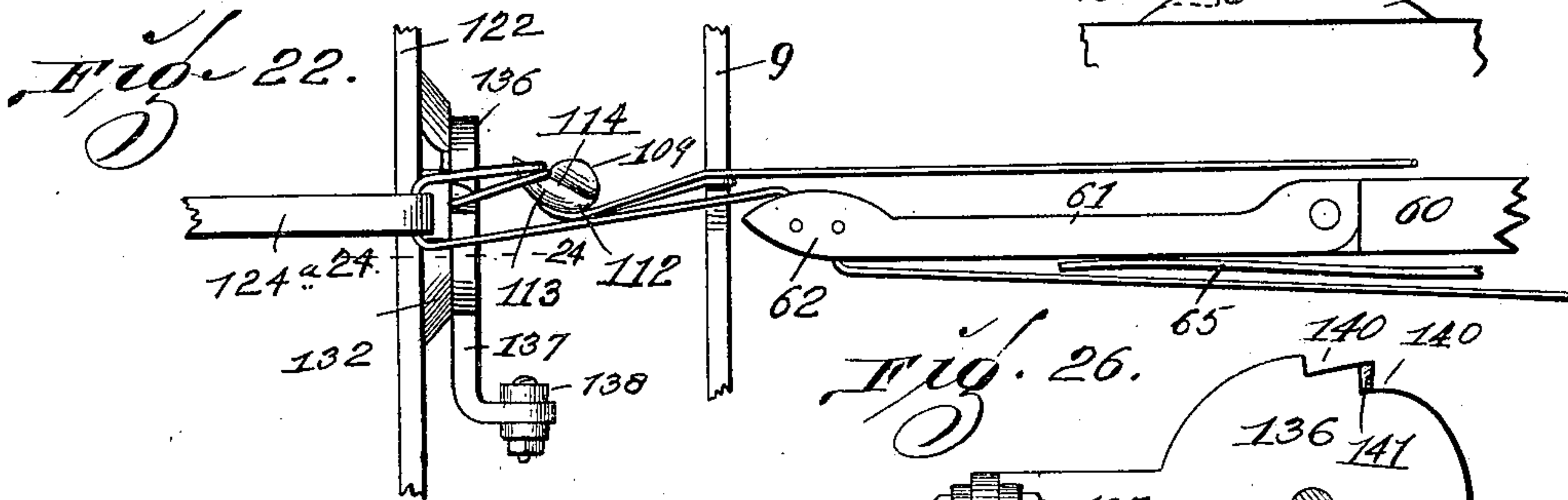
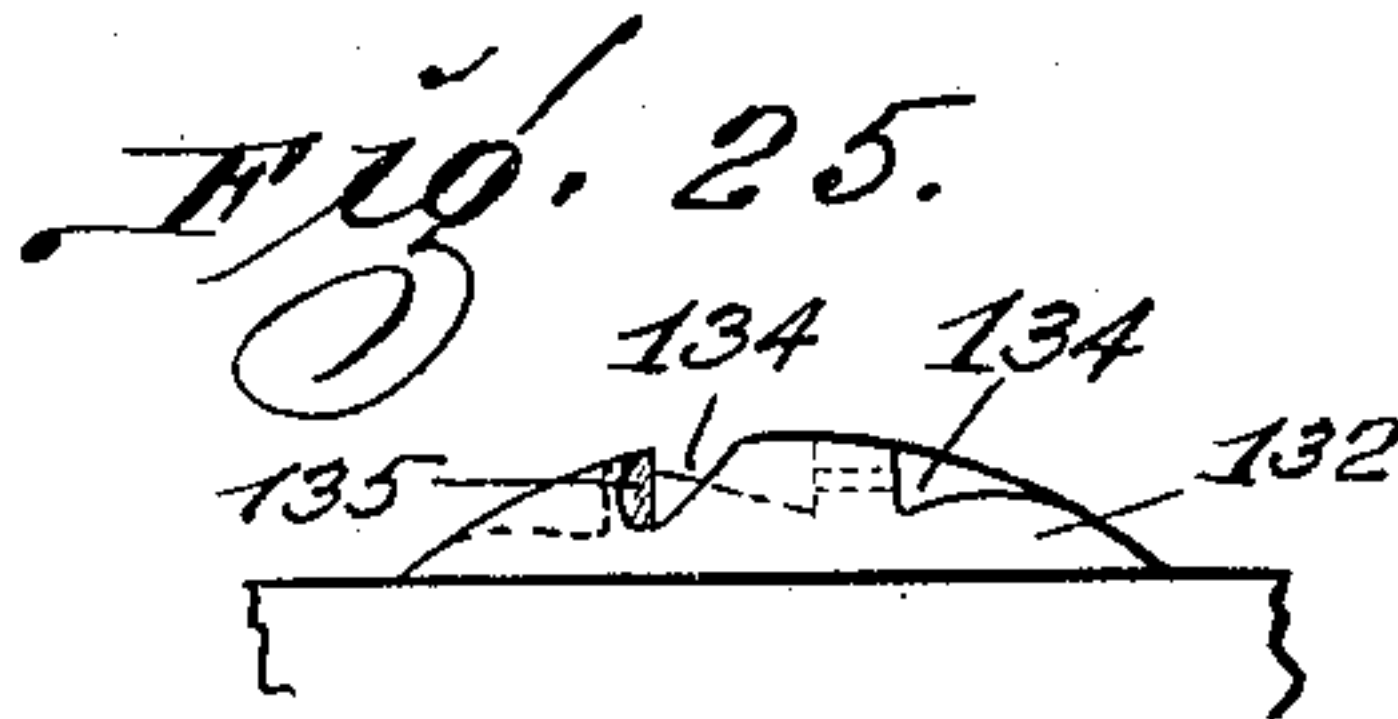
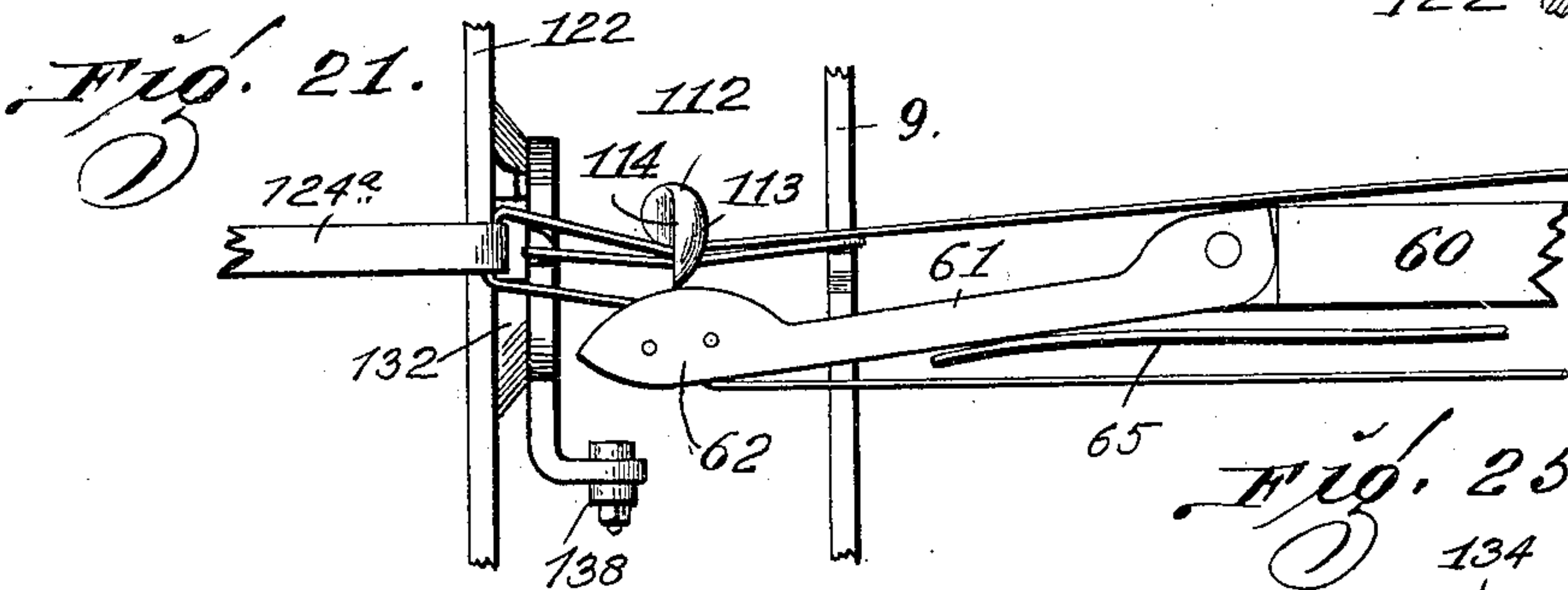
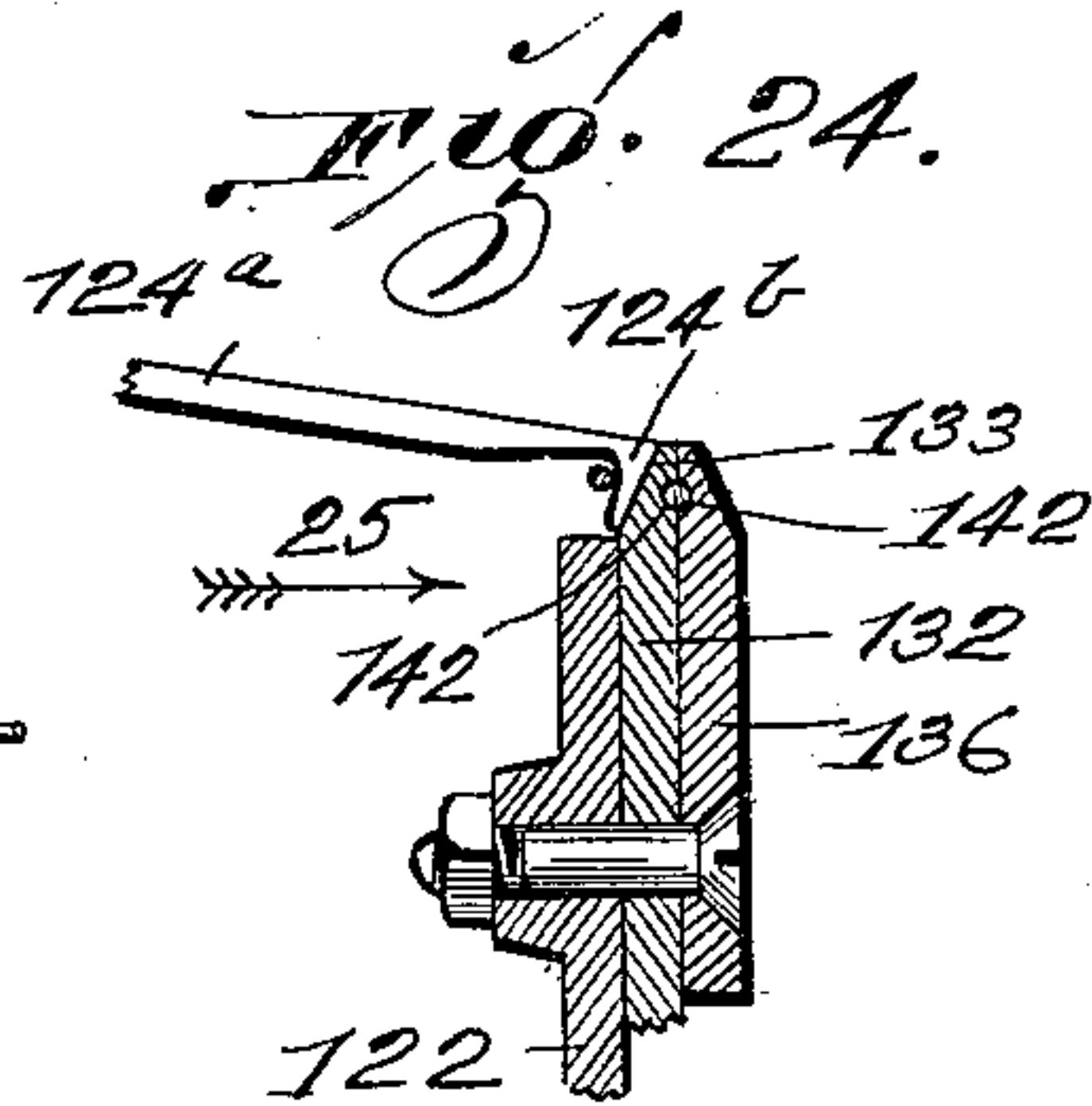
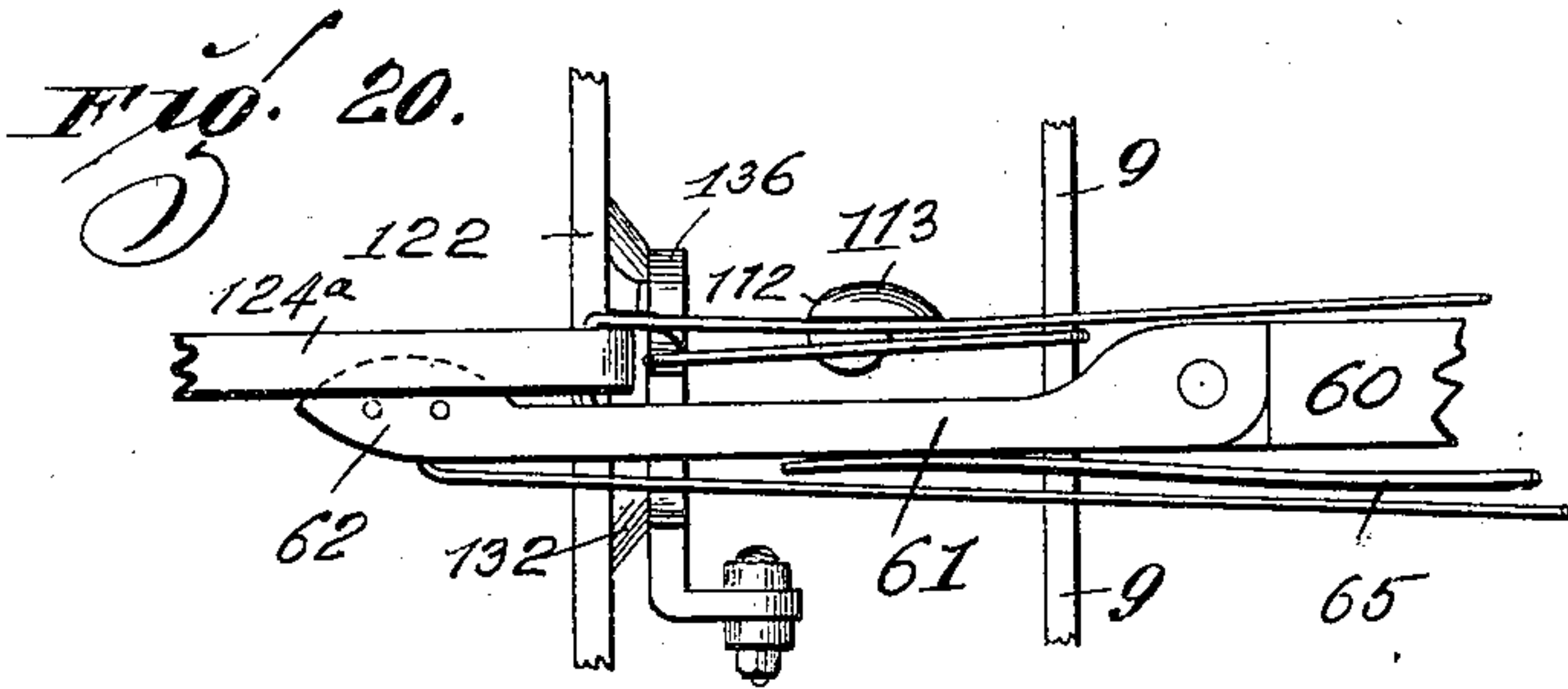
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(Application filed Jan. 30, 1899.)

(No Model.)

6 Sheets—Sheet 6.



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UNITED STATES PATENT OFFICE

LOGAN M. MEDLIN, OF LATHAM, MISSOURI, ASSIGNOR OF ONE-HALF TO
THOMAS KIRSHMAN, OF CALIFORNIA, MISSOURI.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 648,039, dated April 24, 1900.

Application filed January 30, 1899. Serial No. 703,928. (No model.)

To all whom it may concern:

Be it known that I, LOGAN M. MEDLIN, of the city of Latham, county of Moniteau, State of Missouri, have invented certain new and useful Improvements in Baling-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to baling-machines; and it consists of the novel construction, combination, and arrangements of parts herein-after shown, described, and claimed.

Figure 1 is a side elevation of my improved baling-machine, the same being mounted upon traction-wheels. Fig. 2 is a plan view of the baling-machine, a portion thereof being broken away to more clearly illustrate the same. Fig. 3 is a longitudinal sectional view taken approximately on the indicated line 3 3 of Fig. 2. Fig. 4 is a front elevation of the baling-machine. Fig. 5 is an enlarged vertical sectional view taken approximately on the line 5 5 of Fig. 4. Fig. 6 is an enlarged vertical sectional view taken approximately on the line 6 6 of Fig. 4. Fig. 7 is an enlarged side elevation of the mechanism seen when looking in the direction indicated by the arrow 7 in Fig. 4. Fig. 8 is a plan view of the mechanism seen in Fig. 7. Fig. 9 is an enlarged vertical sectional view taken approximately on the line 9 9 of Fig. 2 and showing the completed bale within the baling-box just prior to the discharge of said bale. Fig. 10 is a plan view of the knot-tying device and wire-cutter. Fig. 11 is an enlarged vertical sectional view taken approximately on the line 11 11 of Fig. 4. Fig. 12 is a plan view of the under side of the device illustrated in Fig. 11. Fig. 13 is a horizontal sectional view taken approximately on the line 13 13 of Fig. 4. Fig. 14 is an enlarged side elevation of the forward end of one of the needles made use of in my improved baling-machine. Fig. 15 is an enlarged vertical sectional view taken approximately on the line 15 15 of Fig. 4. Fig. 16 is an enlarged horizontal sectional view taken approximately on the line 16 16 of Fig. 1. Fig. 17 is a vertical sectional view taken approximately on the line 17 17 of Fig. 16. Fig. 18 is a detail side elevation of the mechanism illustrated in Fig. 16. Fig. 19 is a view

in perspective of a sliding plate made use of in the mechanism illustrated in Figs. 17 and 18. Figs. 20, 21, 22, and 23 are plan views illustrating the positions of the needles and the knot-tying devices at various stages during the formation and tying of the knots in the baling-wires. Fig. 24 is a sectional view taken approximately on the line 24 24 of Fig. 22. Fig. 25 is a detail elevation taken looking in the direction indicated by the arrow 25 in Fig. 24. Fig. 26 is an elevation of the wire-cutting device made use of in my improved baling-machine. Fig. 27 is a view illustrating the knot that is tied in the baling-wire.

In the construction of my improved baling-machine a rectangular framework is mounted upon traction-wheels, which framework consists of the longitudinally-extending base-timbers 1, four vertically-arranged corner-posts 2, the longitudinally-extending side-timbers 3, framed to the upper ends of the posts 2, and the transversely-extending timber 4 at the rear ends of the top timbers 3. The base-timbers 1 are somewhat longer than the timbers 3, and a suitable platform may be formed upon the forwardly-extending ends of said base-timbers, and a driver's seat 5 may be located thereon. Transversely arranged in the framework thus formed and just forward of the center thereof is a rectangular baling-box 6, the same having an open top and bottom, and said box is braced in position by means of the bars 7. Fixed to the top edges of the sides of this box are longitudinally-extending plates 8, the ends thereof extending beyond the sides of the box and are for the purpose of allowing the outer rollers of the traveling carriage to ride thereon. The upper half of the front side of the box is constructed of a metallic plate 9.

Arranged for longitudinal movement above the baling-box and in the forward portion of the framework is a traveling carriage, which comprises a pair of side timbers 10, in which are journaled the ends of four transversely-arranged shafts 11, 12, 13, and 14. Carried by the shafts 11 and 14 and located just inside the side timbers 10 is a pair of side-boards 15, which form a part of this traveling carriage. Journaled in these side-boards 15 are

trunnions of a roller 16, the same occupying a position immediately above the shaft 12. Pivotaly arranged upon the trunnions of this roller is a pair of upwardly-extending bars 17, between the upper ends of which is journaled a transversely-extending roller 18, and fixed to and extending rearwardly from said bars 17 is a pair of sheet-metal wings 19. Passing around the rollers 16 and 18 is an endless carrier 20.

Extending transversely between the side-boards 15 a short distance from the roller 16 is a bar 20^a, to the ends of which is hinged a pair of upwardly-extending bars 21, the upper ends of which are provided with vertical slots 22. A plate 23 is fixed to and carried by these bars 21, and sheet-metal wings 24 are carried by said bars and extend forwardly and beyond the edges of the wings 19. These pairs of wings 19 and 24, together with the plate 23 and endless carrier 20, form the hopper of my improved baling-machine.

Passing through the slots 22 in the upper ends of the bars 21 are trunnions 25 of a roller 26, and arranged upon said trunnions 25 are the rear ends of connecting-bars 27, the forward ends of which are arranged upon the trunnions of the roller 18. The left-hand trunnion 25 of the roller 26 carries a fixed sprocket-wheel 28, the right-hand end thereof carrying a fixed sprocket-wheel 29. Journaled at the rear end of the baling-machine is a transversely-arranged roller 30, the same being in horizontal alinement with the shafts 11, 12, 13 and 14, and fitted to each end of said roller 30 outside the journal-boxes are the cranks 31. Fixed upon the right-hand one of these cranks 31 is a sprocket-wheel 32, and passing around said sprocket-wheel 32 and the sprocket-wheel 28, carried by the right-hand trunnion of the roller 26 is a sprocket-chain 34. A pair of connecting-bars 35 extend from the crank-shafts 31 to the trunnions at the ends of the roller 26, and passing around the rollers 26 and 30 is an endless carrier 36. Side connecting-rods 39 are journaled upon the ends of the cranks 31 and extend from thence to the forward ends of the side timbers 10 of the traveling carriage, to which they are journaled. Thus when the cranks 31 are rotated a reciprocating movement is imparted to the traveling-carriage.

Interposed between the side timbers 10 and the side timbers 3 of the frame of the baling-machine are guide-rollers 40 and 41 and are for the purpose of preventing any vertical movement of the traveling carriage.

The shafts 11, 13, and 14 are journaled in fixed bearings in the side timbers 10, while the shaft 12 is journaled in longitudinally-moving bearings 42, the same being arranged in slots formed in the timbers 10 and provided with expansive coil-springs, the normal tendency of which is to force the bearings toward the shaft 13.

Loosely journaled upon each of the shafts

11, 12, 13, and 14, just inside the side-boards 15 are the rollers 43, the same bearing directly upon the bars 8 on top of the sides of the baling-box 6. Loosely journaled upon the shafts 11 and 14, between the rollers 43, are rollers 44, the same being held apart from each other and apart from the rollers 43 by collars 45. Rigidly fixed upon the shafts 12 and 13, between the loosely-mounted rollers 43 thereon, are the pairs of rollers 46 and 47. Loosely mounted upon the left-hand end of the shaft 11 is a sprocket-wheel 48, and fixed upon the ends of the shafts 12 and 13 are the sprocket-wheels 49 and 50. A sprocket-wheel 51, which performs the function of an idler, is loosely mounted upon the shaft which connects the lower end of the bar 17 to the side board 15 on the right-hand side of the machine, and passing over the sprocket-wheel 29, downwardly beneath the sprocket-wheel 50, over the sprocket-wheel 49, around the sprocket-wheel 48, and beneath the idler 51 is a sprocket-chain 52, its function being to operate the shafts and rollers previously mentioned.

Journaled in suitable bearings 53 in front of the baling-box 6 is a transversely-arranged shaft 54. Upon each end of this shaft 54, adjacent the bearings, is rigidly fixed the gear-wheels 55, and meshing with said gear-wheels are longitudinally-extending racks 56, the same being formed in the forward ends of the bars 57, which extend rearwardly through the framework of the baling-machine, and connecting the ends of said bars 57 are transverse bars 58. Fixed to the center of the upper one of these transverse bars 58 and extending forwardly therefrom are the needles 59, the same being so arranged as that they will pass between the rollers 43 and 44 and 46 and 47. These needles are arranged in such vertical planes as that they will pass beneath the shafts upon which the rollers just mentioned are journaled, and each of said needles comprises a body portion 60, to the forward end of which is hinged a blade 61, which blade is provided with a head 62, in which is formed a horizontally-arranged slot 63. Rotatably arranged in this slot within the head is a pair of grooved rollers 64, and a leaf-spring 65 is secured to one side of the bar 60 and bears against one side of the hinged blade 61.

Secured to the tops of the rear ends of the needles 59 are blocks 66, having inclined or curved forward ends so arranged to come in communication with collars 67, mounted upon the shaft 13, between the rollers 43, 46, and 47, for lowering the ends of said needles. Loosely mounted upon the shaft 54, adjacent the right-hand gear-wheel 55, is a gear-wheel 68, said gear-wheel being in mesh with a rack 69, carried by the under side of the right-hand one of the timbers 10 of the traveling carriage. Formed on or fixed to the outer face of the gear-wheel 68 is an eccentric disk 70, the same being provided with the single

shoulder or tooth 71, which manipulates a spring-actuated pawl. Projecting laterally from the face of this disk 70 is a pin 72, which is to engage at a given point with the arm 5 supporting the spring-actuated pawl.

Rigidly fixed upon the shaft 54 outside the disk 70 is an arm 73, the same carrying on its outer end a spring-actuated pawl 74, the rear end of which pawl is extended beyond the 10 end of the arm 73 and provided with a curved outer end 75. The normal tendency of the spring 74^a, that actuates this pawl 74, is to throw the point of said pawl into engagement with the notch or tooth 71 of the disk 70.

15 Arranged for lateral movement upon the right-hand one of the timbers 1, immediately behind the shaft 54, is a block 76, in which is formed a notch or recess 77, in which the pawl 74 is adapted to engage. A bracket 78 is secured to the timber 1 and extends downwardly therefrom beneath this block 76, and fulcrumed to said bracket 78 is a bell-crank 20 79, the upper end of which is pivoted to the outer end of the block 76 for providing a lateral movement to said block.

Arranged to rotate in suitable bearings 80, secured to the under side of the timbers 1 and immediately beneath the shaft 54, is the transversely-arranged shaft 81, upon the left-hand 30 end of which is loosely mounted a gear-wheel 82, the same meshing with the gear-wheel 55. Rigidly carried by this shaft 81, adjacent the inner face of the gear-wheel 82, is a disk 83, having a single shoulder 84, and carried by the face of the gear-wheel 82 is a spring-actuated pawl 85, the point of which is arranged to engage against the shoulder 84. Carried 35 by the shaft 81, adjacent the right-hand end thereof, is a pin 86, which is designed to communicate with the arm for operating the block 76, and arranged upon said shaft at equal distances apart are beveled gear-wheels 87, by which the knotting mechanism is operated, the rear faces of which are provided 45 with eccentrically-arranged disks 88, which operate connecting-rods.

Fixed to and extending downwardly from the undersides of the timbers 1, immediately in front of the front wall of the baling-box, 50 are the loops 89, in which loops operate the ends of the transversely-arranged shaft 90, said ends being engaged by the lower ends of rods 91, that extend upwardly through the timbers 1, and said rods 91 being provided 55 on their upper ends with nuts 92. Expansive coil-springs 93 are interposed between these nuts and the timbers 1 around said rods 91, their purpose being to retain said shaft 90 in its normal position.

60 The end of the horizontal arm of the bell-crank 79, previously mentioned, is attached by means of a loop 94 to the right-hand end of the rod 90 for operating the same. Upon the left-hand end of said rod, immediately 65 inside of the left-hand loop 89, is a forwardly-projecting arm 95, which normally rests upon the lug 96, that is formed integral with the

left-hand one of the bearings 80, and the forward end of said arm 95 normally engages behind the pin 86, carried by the shaft 81. 70

A leaf-spring 97 is secured to the under side of the right-hand side of the baling-box 6, the free end of said spring engaging on top of the arm 95, its tendency being to normally keep said arm 95 in communication with the lug 96. 75

The lower end of the baling-box is normally closed by a skeleton door, the same comprising a plurality of longitudinally-extending bars 98, which are hinged at their rear ends to the lower edge of the rear end 80 wall of the box, and located upon top of these bars 98 is a plurality of transversely-extending slats 99. The hinges that connect this skeleton door with the lower end of the baling-box are spring-actuated, the normal tendency of which is to cause the skeleton door to remain closed or against the bottom of the baling-box. Spring-actuated bars 100 are arranged upon the under side of the bars 98, the forward ends of said bars 100 being turned 90 downwardly and terminating in points 101. Fixed to and extending downwardly from the rod 90 are hooks 102, in which hooks said points 101 engage when the door is closed. The springs 103, that actuate the bar 100, are 95 expansive springs and are so arranged as that they throw said bars forwardly.

The knot-tying devices, of which there are three, are arranged upon the front of the baling-box 6, and as all of said knot-tying devices are of the same construction but one 100 will be described. One of the knotters is located immediately beneath the spaces between the rollers carried by the shafts 11, 12, 13, and 14, and each knotter operates in conjunction with its respective needle to tie a knot in the wire after the same has been 105 passed around the bale. A bracket 104 is bolted to the front of the lower half of the baling-box 6, and to the lower end of this bracket is secured in any suitable manner a sleeve 105, on the interior of the lower end of which is formed a cam 106, which cam is provided with a single indentation or deepened portion 107. A bearing 108 is formed 115 in the center of the upper end of this sleeve 105, through which bearing operates the lower end of a vertically-moving shaft 109. Upon the lower end of this shaft 109, beneath the bearing 108, is fixed a laterally-projecting 120 arm 110, the same carrying on its outer end a roller 111, which rides directly upon the cam 106. The rod 109 extends upwardly to a point in a plane above the upper edge of the baling-box 6, and upon said upper end is 125 formed a laterally-projecting prong or beak 112, the same being provided on one side with a curved or rounded surface 113 and upon its opposite side with a flat vertical face 114. Arranged upon the rod 109 a short distance above 130 the sleeve 105 is a beveled gear-wheel 115, the same meshing with the beveled gear-wheel 87, and formed in the rod 109 at the point occupied by said beveled gear-wheel 115 is a

groove 116, into which extends a lug 117, that is integral with the gear-wheel 115. Thus said gear-wheel rotates with the rod 109, and said rod may move vertically through said gear-wheel. The upper end of the shaft 109 is rotatably arranged in a bearing 118, that is bolted to the front side of the metallic plate 9, forming the upper half of the front of the baling-box, and a bearing 119, through which the rod 109 passes, is located immediately above the gear-wheel 115, said bearing 119 being bolted to the bracket 104. A collar 120 is fixed to the rod 109 a short distance above this bearing 119, and an expansive coil-spring 121 is located upon said rod 109 between the bearing 119 and the collar 120 for normally keeping said rod 109 in a lowered position. Bolted to the ends of the plate 9 is a plate 122, the same extending outwardly around the upper ends of all of the rods 109, acting as a clamp for the baling-wire, and formed on or fixed to and extending outwardly from the ends of said plate 122 are brackets 123. In the outer ends of these brackets 123 is journaled a shaft 124, the right-hand end of which is extended a short distance beyond the baling-box, and upon said extended end is pivotally arranged a horizontally-moving finger 125, the end of which carries a laterally-projecting pin 126. Fixed upon this shaft 124 is a series of arms 124^a. The forward end of each is formed into a hook 124^b, around which the wire is passed for knotting. A spring 127 is carried by the end of the shaft 124, the free end of said spring engaging against the outer end of the finger 125.

Carried by the outside of the right-hand rack 56 is a wedge 128, the point thereof being directed toward the finger 125, the rear end of said wedge being provided with a curved face 129, there being a lip 130 projecting outwardly from said curved face 129. One end of a coil-spring 131 is secured to the shaft 124, the body of said spring being wound around said shaft and the free end of said spring engaging in one of the brackets 123. The normal tendency of this spring is to cause the rod 124 to rotate in such a direction as that the free end of the finger 125 is thrown downwardly into a position to be engaged by the wedge 128, which manipulates the arms 124^a. Formed on or fixed to the inside faces of the plate 122, immediately behind each of the rods 109, is a plate 132, the upper end of which is slightly curved and extends a short distance above the upper edge of said plate 9. The center of the upwardly-projecting front face of this plate 132 is beveled, as indicated by 133, and formed in said upwardly-projecting end is a pair of notches 134, one side of one of which is provided with a knife-edge 135. Rotatably held upon each of the plates 132 is a semicircular disk 136, the same being provided with an integral arm 137, to which is pivotally held a connecting-rod 138, that extends downwardly and is secured to a strap 139, that passes around the eccentric 88, its

function being to operate the wire-knotting mechanism. Formed in the upper edge of the semicircular disk 136 is a pair of notches 140, in which the wire is passed, one of which is provided with a knife-edge 141 in opposition to the knife-edge 135, previously mentioned, its function being to sever the wire at a given time.

Formed on the meeting faces of the plate and disk, adjacent the notches 134 and 140, that are not provided with the knife-edges, are small semicircular grooves 142, which coincide when the disk 136 is in its normal position.

The wire-carrying spool 143 is arranged upon the spindle 144, carried between the rear ends of the timbers 1, the wire from said spool being carried upwardly over the transverse bar 58 and from thence through the eye or slot 63 in the head of the needle. The forward end of this wire is clamped in the semicircular grooves 142 by means of the plate 132 and disk 136.

The operation is as follows: The normal positions of the various parts of the machine are as illustrated in Figs. 2, 3, 4, 10, 16, 17, and 18. The wires from the spools 143 extend forwardly through the frame of the machine over the top of the baling-box 6 through the eyes of the needles, and the forward ends of said wires are clamped in the coinciding grooves 142, that are formed in the plates 132 and 136. Rotary motion is imparted to the roller 30, and the material to be baled is delivered in any suitable manner onto the endless carrier 36, and by said endless carrier said material is elevated and delivered into the hopper formed by the pairs of wings 19 and 24 and endless carrier 20. As the roller 30 operates, the cranks 31, carried by the ends thereof, will actuate the connecting-bars 39, the same in turn imparting a reciprocatory motion to the traveling carriage, comprising the side timbers 10, shafts 11, 12, 13, and 14, and the rollers carried thereby. As said traveling carriage reciprocates the end rollers 43 ride directly upon the bars 8 on the top of the sides of the baling-box 6, the rollers 43 operate directly over said box, while the rollers 46 and 47, which are fixed upon the shafts 12 and 13, rotate toward each other, for the reason that said shafts 12 and 13 are rotated toward each other by the action of the sprocket-chain 52, passing around the sprocket-wheels 49 and 50, fixed to said shafts 12 and 13. The object of rotating said rollers toward each other is to feed the web of material into the baling-box. Thus the material to be baled is delivered directly onto the wires passing across the top of said box by the rollers 46 and 47, and as more material is delivered it is pressed downwardly into said box by the rollers 43 and 44, which movement causes the wire to pay out and pass downwardly through the box 6, beneath the material that is being forced into said box. The shaft 12, carrying its rollers, is forced toward the shaft 13 and

its rollers by the springs operating against the sliding bearings 42, carrying said shaft 12, and this causes the material that is being baled to be pressed into a thin sheet or web, and as the material is being constantly fed into the hopper and between the rollers 46 and 47 this sheet or web is formed continuously, and it is folded back and forth into the baling-box by the reciprocating action of the traveling carriage. As the traveling carriage reciprocates the pinion 68 and disk 70 will make almost a complete revolution for the reason that said pinion 68 is in mesh with the rack 69, carried by the traveling carriage. During this partial rotation of the pinion 68 and disk 70 the pin 72 is carried around in the direction indicated by the arrow *a* in Fig. 18 until said pin engages against the under side of the finger 73, raising said finger slightly, releasing the pawl from the groove of the block 76. At this instant the traveling carriage is at its forward limit of movement, and when said carriage returns to its rearward limit of movement said pin 72 will travel backwardly to its original position. The movements just described are continued until the baling-box is completely filled, and as more material is forced into said box a pressure will be created within said box, which pressure is downwardly upon the skeleton door, normally closing the bottom of said box, and as said pressure increases said door is forced downwardly, which movement causes the rod 90 to move downwardly for the reason that the points 101 of the spring-actuated bars 100 engage in the hooks 102. As said rod 90 moves downwardly in the loops 89 the coil-springs 93 are compressed and the bell-crank 79, that is secured to said rod 90, is actuated and the sliding block 76 is moved inwardly until the notch 77 is brought into a position immediately beneath the extended rear end of the spring-actuated pawl 74. The spring 74^a throws the extended rear end of said pawl 74 downwardly into said notch 77, and thus the point of said pawl 74 of the lower arm, against which the free end of the spring 74^a rests, is thrown into the path of travel of the shoulder 71, carried by the disk 70. As the rod 90 moves downwardly the projecting arm 95 strikes against the extended lug 96, formed integral with the bearing 80, and as said arm 95 continues to move downwardly and said arm remains in contact with said lug said rod will be slightly rotated by means of the pin 86 of the shaft 81 coming in contact with the arm 95, (indicated in Fig. 5,) and the hooks 102 will thus be thrown forwardly a slight distance, which will allow the points 101 of the spring-actuated bars 100 to release from said hooks, and the skeleton door will swing downwardly. After the convex surface of the spring-actuated pawl 74 has dropped into the notch 77 the next forward movement of the traveling carriage will cause the shaft 54 to rotate with the disk 68 for the reason that the shoulder 71 of the disk 70

engages the point of the pawl 74, and said pawl 74 is carried upon the arm 73, that is fixed upon said shaft 54, and as said shaft 54 rotates the gear-wheels 55 will be rotated, and the same meshing with the racks 56 will cause said racks to move forwardly, and consequently the transverse bars 58, carrying the needles 59, will be moved forwardly, and said needles will pass directly over the top of the box and past the upper ends of the rods 109. Just before the points of the needles reach the upper ends of the rods 109 the forward ends of said needles will be depressed for the reason that the blocks 66, carried by the upper sides of said needles 59, are engaged by the collars 67, located upon the shaft 13. Thus the wires are carried across the top of the bale and to a point where they may be engaged by the knot-tying devices. When the right-hand one of the gear-wheels 55, located adjacent to the gear-wheel 68, is rotated with the shaft 54 by the forward movement of the racks 56, the gear-wheel 82 is necessarily rotated, but the shaft 81 is not rotated for the reason that the spring-actuated pawl 85, carried by the gear-wheel 82, moves around the disk 83 in a direction opposite to the shoulder 84, formed in said disk 83, but with the return movement of the racks 56, and when the gear-wheel 55 is rotated in the opposite direction the point of said spring-actuated pawl 85 engages against the shoulder 84, and said disk 83, fixed upon the shaft 81, rotates with said gear-wheel 82, and consequently the beveled gear-wheels 87 are rotated, and as the beveled pinions 115, meshing therewith, are rotated by the beveled gear-wheels 87 consequently the vertically-arranged rods 109 are rotated. The needles in their forward movement carry the wires across the top of the baling-box along the vertical faces 114 of the prongs 112, carried by the upper ends of the rods 109, said wire passing through the coinciding notches 134 and 140, that are provided with the knife-edges 135 and 141. When the needle has reached its forward limit of movement, as illustrated in Fig. 20, the wedge 128, carried by the right-hand one of the racks 56, engages beneath the pin 126, carried by the finger 125, and said pin and finger are necessarily elevated, which will cause a slight rotation of the rod 124. This movement elevates the arms 124^a for the purpose of clearing the bale-wire, and when the needle starts upon its return rearward movement the hook 124^b is lowered against the front face of the plate 132 as the wedge 128 passes from beneath the pin 126, and the wire is engaged by said hook. The needle traveling rearwardly to its original position swings laterally as it passes said hook 124^b and the upper end of the rod 109, this movement being illustrated in Fig. 21, and as said needle passes behind the upper end of the rod 109 the wire passing through the eye of said needle is drawn into a position over the upper end of said rod 109 and over the top of the baling-box. The wire

after being engaged by the hook 124^b passes between the coinciding notches 134 and 140, that are not provided with the knife-edges. In the meantime all of the vertical rods 109 are being rotated, and as they rotate they are drawn downwardly by the action of the roller 111 riding upon the cam-surface 106. After the rod 109 has made a complete revolution and been drawn downwardly it is again elevated by the coil-spring 121, and at the completion of this revolution the eccentric 88, carried by the shaft 81, actuates the connecting-rod 138, thus imparting a slight movement to the disk 136 and causing the knife-edges 141 of the notch 140 to engage against the knife-edge 135 of the notch 134, and the wires in said coinciding notches are thus severed. The knot seen in Fig. 27 is formed by the rotation of the rod 109, together with the vertical movement thereof, and said knot being formed in the wire that passes around the bale and being severed from the remaining portion of the wire is free to pass downwardly through the baling-box with the bale. The baling-wires surrounding the bale after being cut will allow said bale to pass downwardly through the baling-box, causing the skeleton door to swing open, after which said skeleton door will be swung shut by the action of the coil-springs in the hinges of said door, and the point 101 will again engage in the notch 102. The spring 93 draws the rod 90 upwardly into its normal position, which movement causes the sliding block 76 to re-assume its normal position, and as the revolution of the shaft 54 is completed with the rearward movement of the traveling carriage the rear end of the pawl 74 will engage against the faces of the block 76, and the needle-actuating mechanism is thrown out of operation. Consequently the knot-tying devices are thrown out of operation after performing a single operation, and said needles and knot-tying devices will not operate again until the pressure of the new bale within the baling-box causes the rod 90 to lower, which movement will again actuate the block 76. The forward end of the wire after being cut is clamped between the plate 132 and disk 136 and in the grooves 142 therein.

As my improved baling-machine is mounted upon traction-wheels, it can be readily moved from place to place, and said machine is applicable for baling hay, straw, and all like products. The power required to drive the machine may be imparted to the roller 30 by means of a belt or sprocket-wheel or in any suitable manner.

I claim—

1. In a baling-machine, a framework, a baling-box carried by said framework, a traveling carriage arranged in juxtaposition to the open receiving end of said baling-box, sectional rollers carried by said traveling carriage for forming the material to be baled into a continuous web and pressing the same into the baling-box, means for holding the sections

of said rollers a suitable distance apart, and means for operating the same, substantially as specified.

2. In a baling-machine, a framework, a baling-box provided with an open receiving end carried by said framework, a traveling carriage arranged in juxtaposition to said open receiving end, sectional rollers carried by said traveling carriage for forming the material to be baled into a continuous web and pressing the same into the baling-box, means for holding the sections of said rollers a suitable distance apart, and a hopper arranged to deliver the material to be baled between certain of said sectional rollers, substantially as specified.

3. In a baling-machine, a framework, a baling-box provided with an open receiving end carried by said framework, a traveling carriage arranged in juxtaposition to said open receiving end, sectional rollers carried by said traveling carriage for forming the material to be baled into a continuous web and pressing the same into the baling-box, means for holding the sections of said rollers a suitable distance apart, a hopper arranged to deliver the material to be baled between certain of said rollers, and mechanism for passing the baling-wires partially around the completed bale, which mechanism is automatically operated by the pressure of the bale, substantially as specified.

4. In a baling-machine, a framework, a baling-box carried by said framework, means for carrying sectional rollers in juxtaposition to the open receiving end of said baling-box, means for holding the sections of said rollers a suitable distance apart, a hopper arranged to deliver the material to be baled between certain of said rollers, mechanism for passing the baling-wires partially around the completed bale, and mechanism for tying said baling-wires, which mechanism is operated by the pressure or expansion of the completed bale, substantially as specified.

5. In a baling-machine, a suitable framework, a baling-box provided with an open receiving end carried by said framework, means for carrying a series of sectional rollers in juxtaposition to the open end of said baling-box, means for operating certain of said rollers, a hopper for delivering the material to be baled between certain of said rollers, an endless carrier delivering into said hopper, a plurality of horizontally-moving needles arranged to carry the baling-wires across the top of the completed bale, knot-tying devices arranged to tie the knots in said wires after they have been passed across the top of the bale, and mechanism for operating the needles and the knot-tying devices, which mechanism is thrown into operation by the downward pressure or expansion of the completed bale, substantially as specified.

6. In a baling-machine, a frame, a baling-box rigidly located in said frame, a traveling carriage operating above said baling-box, roll-

ers carried by said traveling carriage for forming the material to be baled into a continuous web, said rollers being formed in sections, which sections are held at suitable distances apart; and mechanism for passing baling-wires across the top of the completed bale, which mechanism passes through the spaces between the sections of the roller and which mechanism is automatically operated by the pressure of the completed bale, substantially as specified.

7. In a baling-machine, a fixed baling-box, a traveling carriage operating horizontally above said box, a plurality of sectional rollers carried by said traveling carriage, and means for holding the sections of said rollers at suitable distances apart, and a plurality of wire-carrying needles passing horizontally over the box between the sections of said rollers, substantially as specified.

8. In a baling-machine, a fixed baling-box, a traveling carriage operating horizontally above said box, a plurality of knot-tying devices arranged on the front of said box, a plurality of wire-carrying needles arranged to operate horizontally over said box a plurality of sectional rollers carried by said traveling carriage, the sections of said rollers held at suitable distances apart, whereby the needles are permitted to pass between the sections of said rollers, means whereby said needles are moved forwardly across said box, and means whereby the knot-tying devices are actuated simultaneous with the return movement of the needles, substantially as specified.

9. In a baling-machine, a fixed baling-box, a spring-actuated skeleton door closing the lower end of said baling-box, a traveling carriage operating horizontally over said baling-box, a plurality of rollers formed in sections carried by the traveling carriage, wire-carrying needles arranged to operate over the baling-box, the sections of said rollers held at suitable distances apart, whereby said needles are permitted to pass between the sections of said rollers and mechanism for operating said needles, which mechanism is held in a latched position by the spring-actuated skeleton door, substantially as specified.

10. In a baling-machine, a fixed baling-box, a traveling carriage operating horizontally over said baling-box, a plurality of rollers formed in sections carried by said traveling carriage, a plurality of wire-carrying needles operating horizontally over the baling-box, the sections of said rollers held at suitable distances apart, whereby the needles are permitted to pass between the sections of said

rollers, knot-tying devices arranged on the front of the baling-box in alinement with the needles, means whereby said needles and knot-tying devices are operated in succession, and clamping devices arranged on the front of the baling-box for clamping the ends of the baling-wires after the same have been passed across the top of the box by the needles, substantially as specified.

11. A baling-machine, comprising a framework, a baling-box provided with an open receiving end carried by said framework, a traveling carriage operating in juxtaposition to said open receiving end of the baling-box, sectional rollers carried by said traveling carriage for forming the material to be baled into a continuous web, means for holding said sectional rollers a suitable distance apart, and mechanism for passing the baling-wires partially around the completed bale, which mechanism passes through the spaces between the sectional rollers and is automatically operated by the pressure of the completed bale, substantially as specified.

12. In a baling-machine, a baling-box, a wire-carrying needle, sectional feed and compressing rollers, means for holding the sections of said rollers a suitable distance apart for permitting the passage of the wire-carrying needles, and means for operating said rollers, substantially as specified.

13. In a baling-machine, a baling-box, a wire-carrying needle, sectional feed and compressing rollers, means for holding the sections of said rollers a suitable distance apart for permitting the passage of the wire-carrying needles, means for operating said rollers, a knot-tying mechanism, and means for operating the same, substantially as specified.

14. In a baling-machine, a baling-box, a wire-carrying needle, spaced feed and compressing rollers for permitting the passage of the wire-carrying needle through the spaces of said rollers, and means for operating said rollers, substantially as specified.

15. In a baling-machine, a baling-box, sectionalized feed and compressing rollers, a wire-carrying needle adapted to pass between the sections of said rollers, means for operating said rollers, a knot-tying mechanism, and means for operating the same, substantially as set forth.

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

LOGAN M. MEDLIN.

Witnesses:

OTTO SAUDEL,
L. M. HICKMAN.