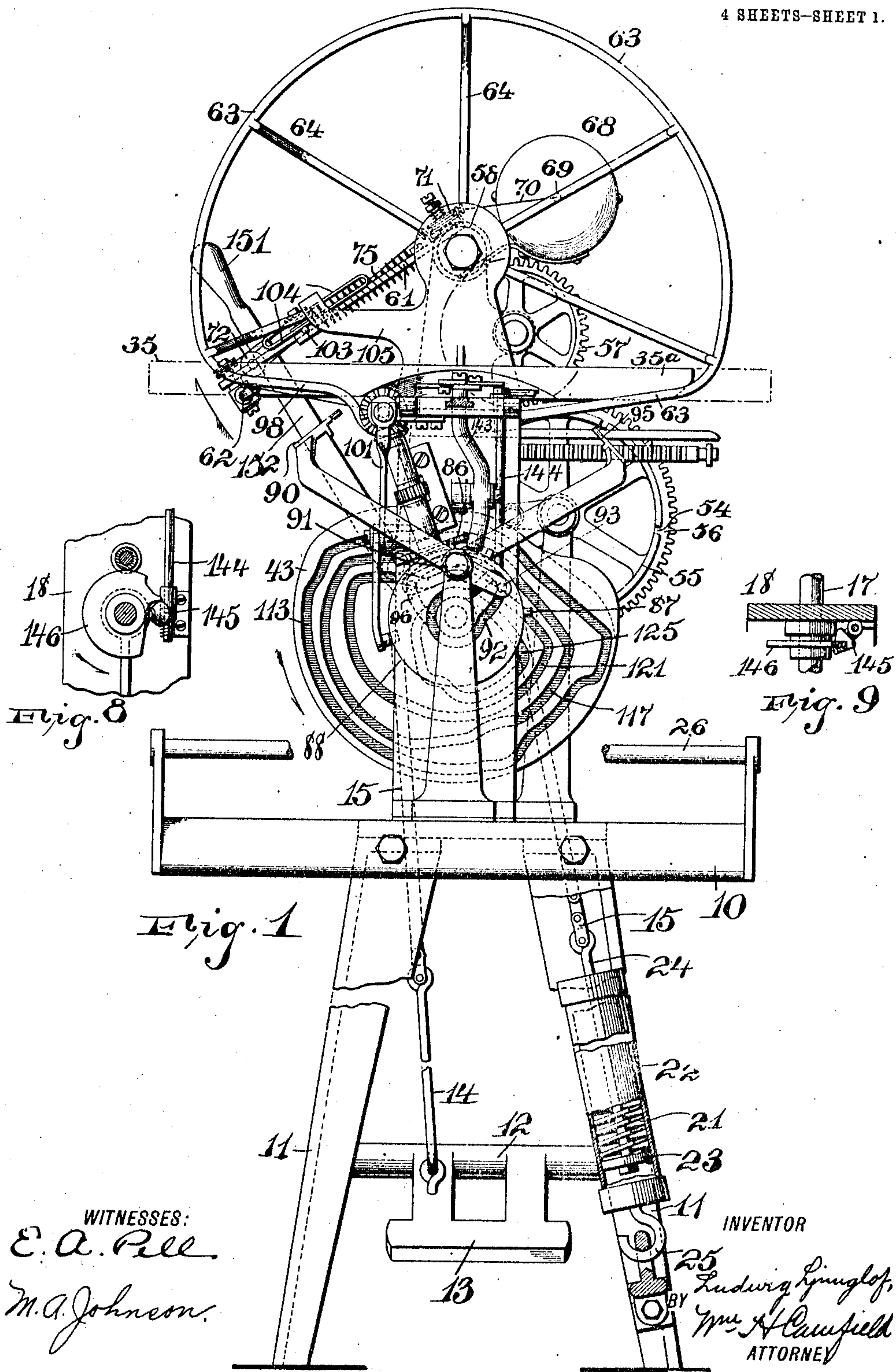


L. LJUNGLOF.
MACHINE FOR WRAPPING PARCELS.
APPLICATION FILED JULY 28, 1909.

989,020.

Patented Apr. 11, 1911.

4 SHEETS—SHEET 1.

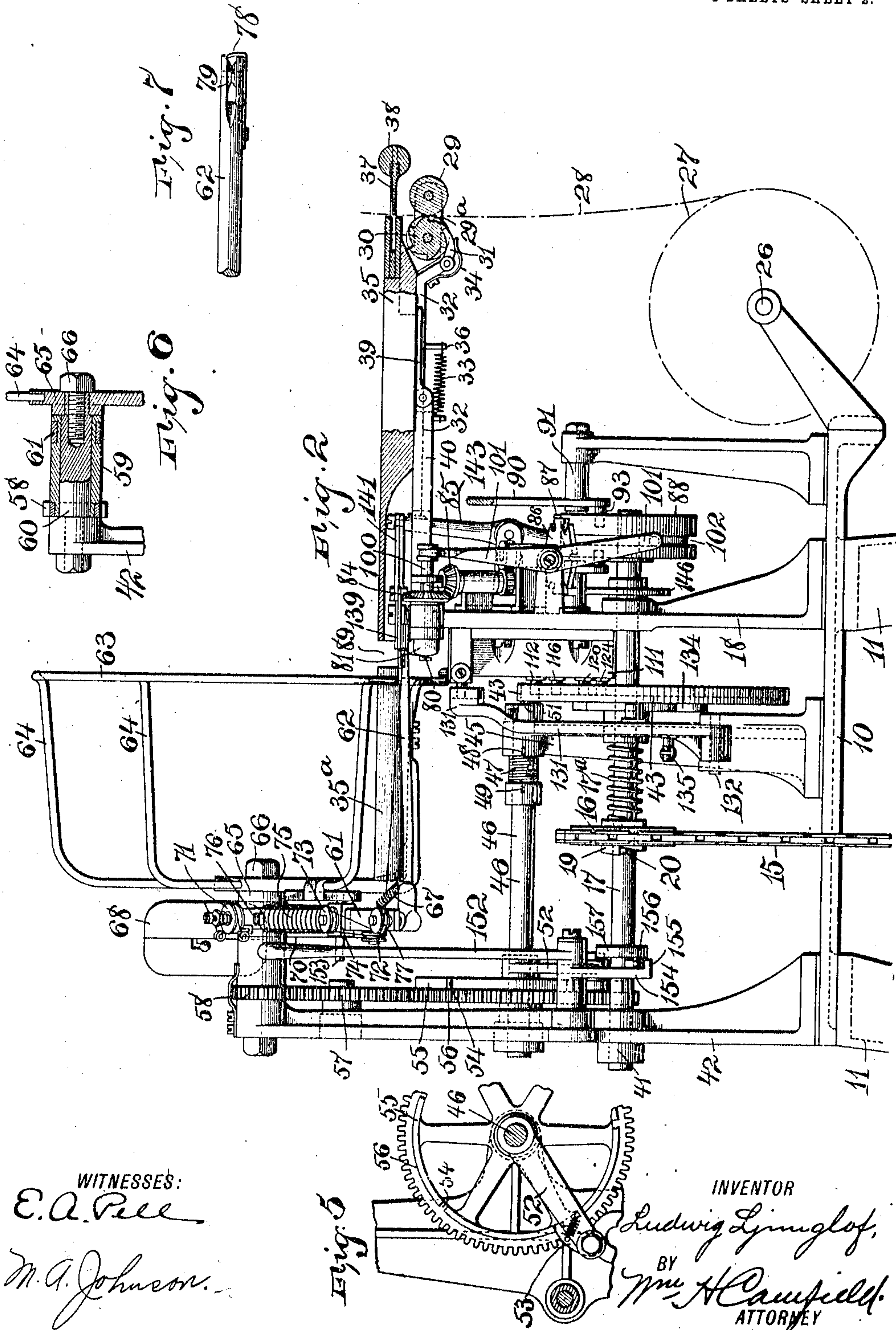


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4 SHEETS—SHEET 2.



WITNESSES:
E. A. Pell
M. A. Johnson.

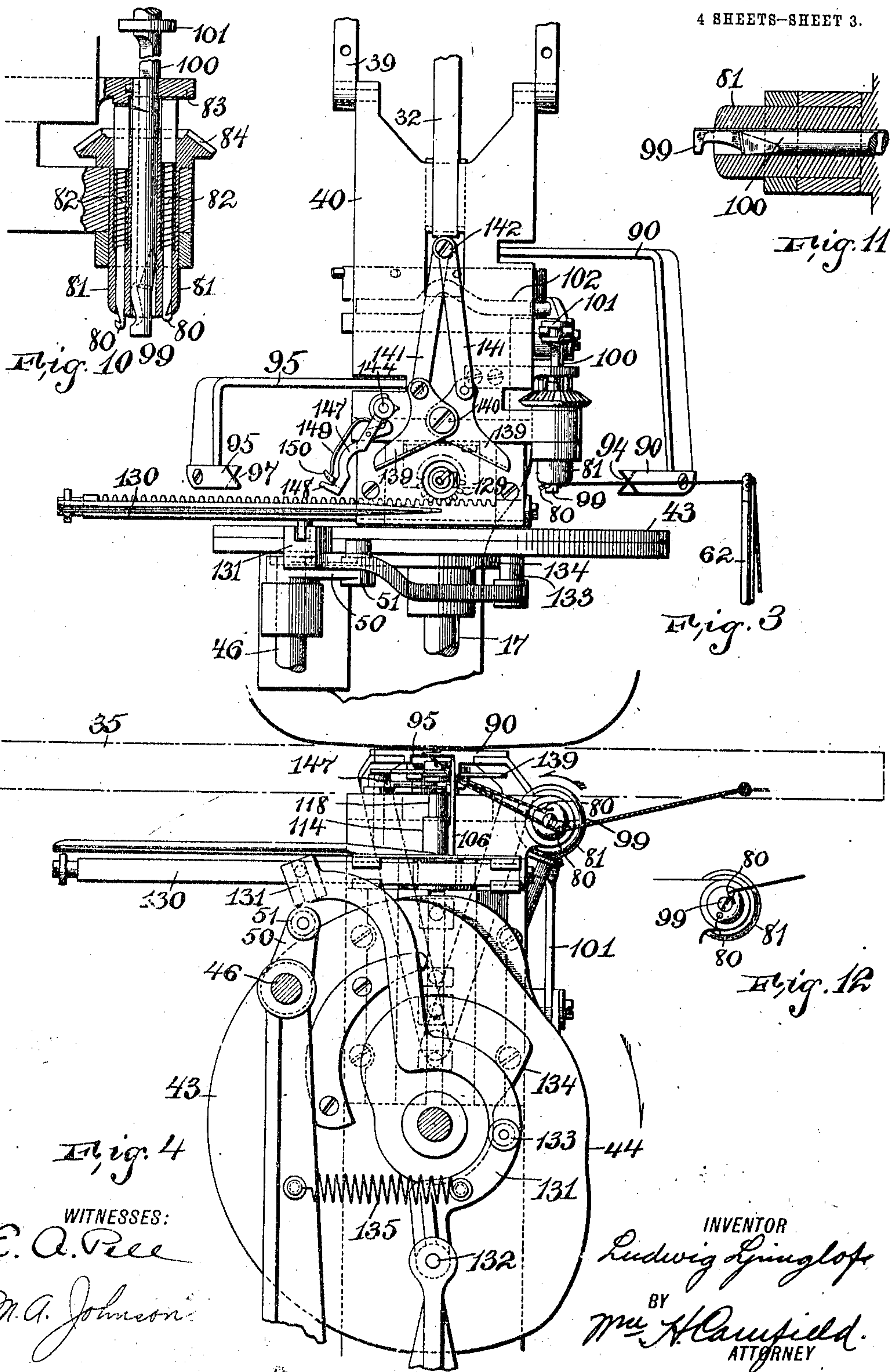
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4,

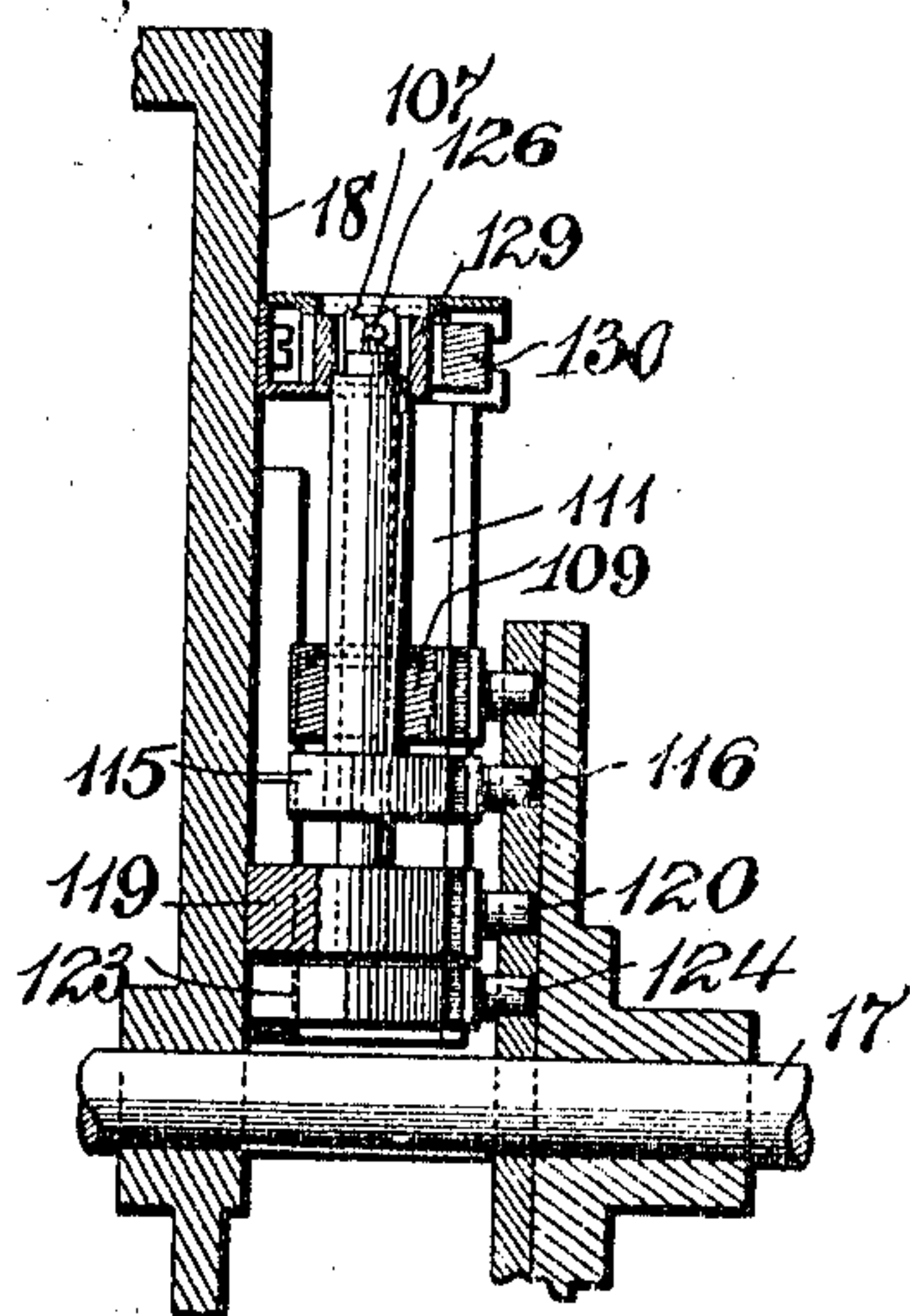


Fig. 13

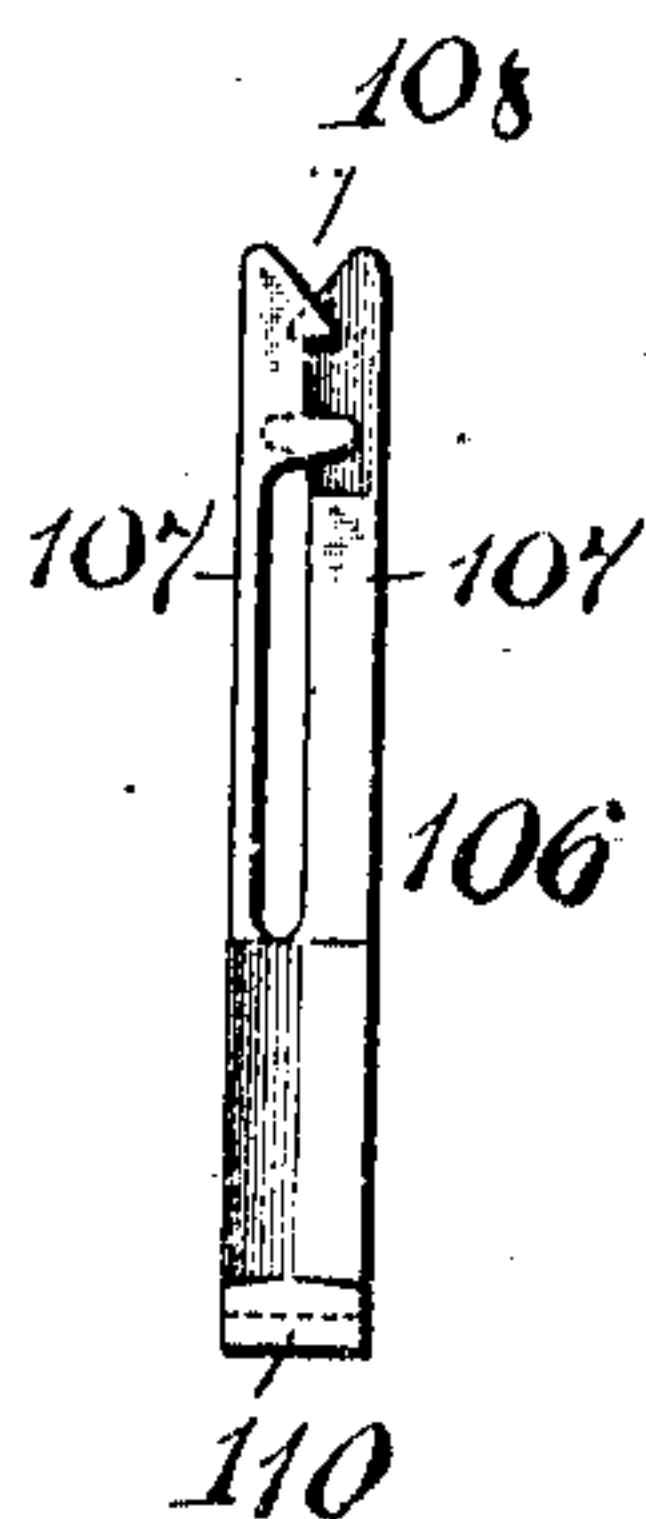


Fig. 16

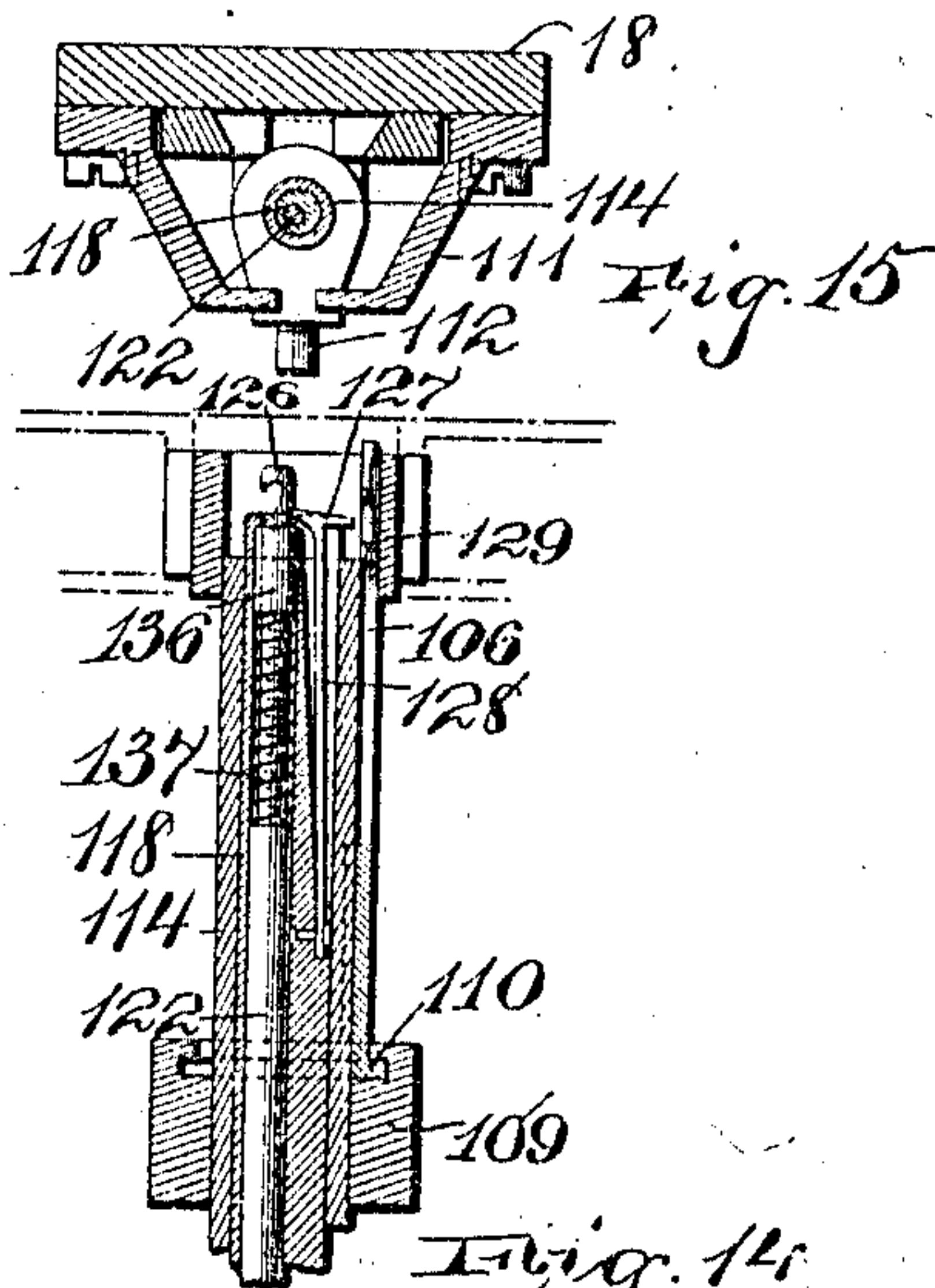


Fig. 15

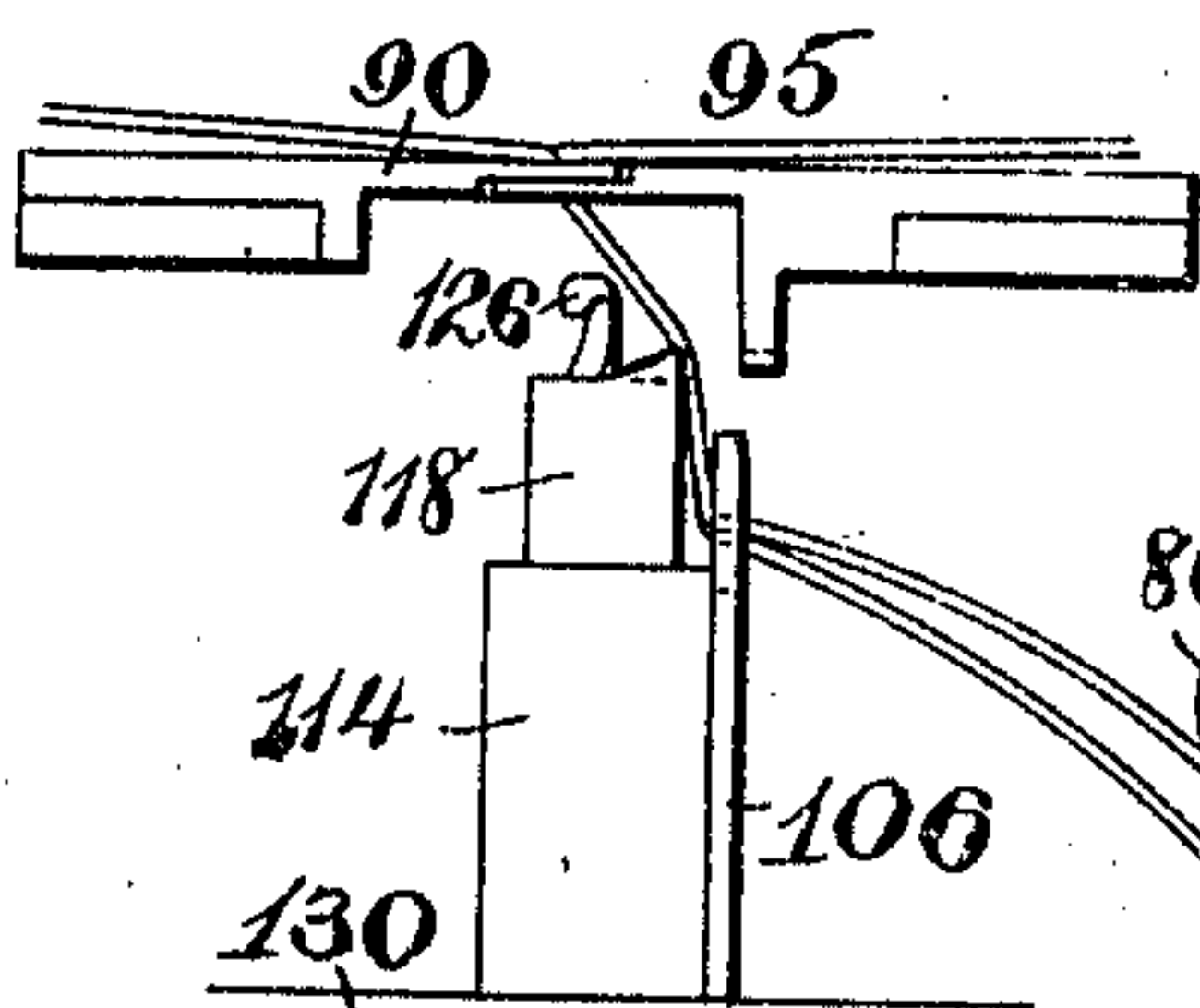


Fig. 17

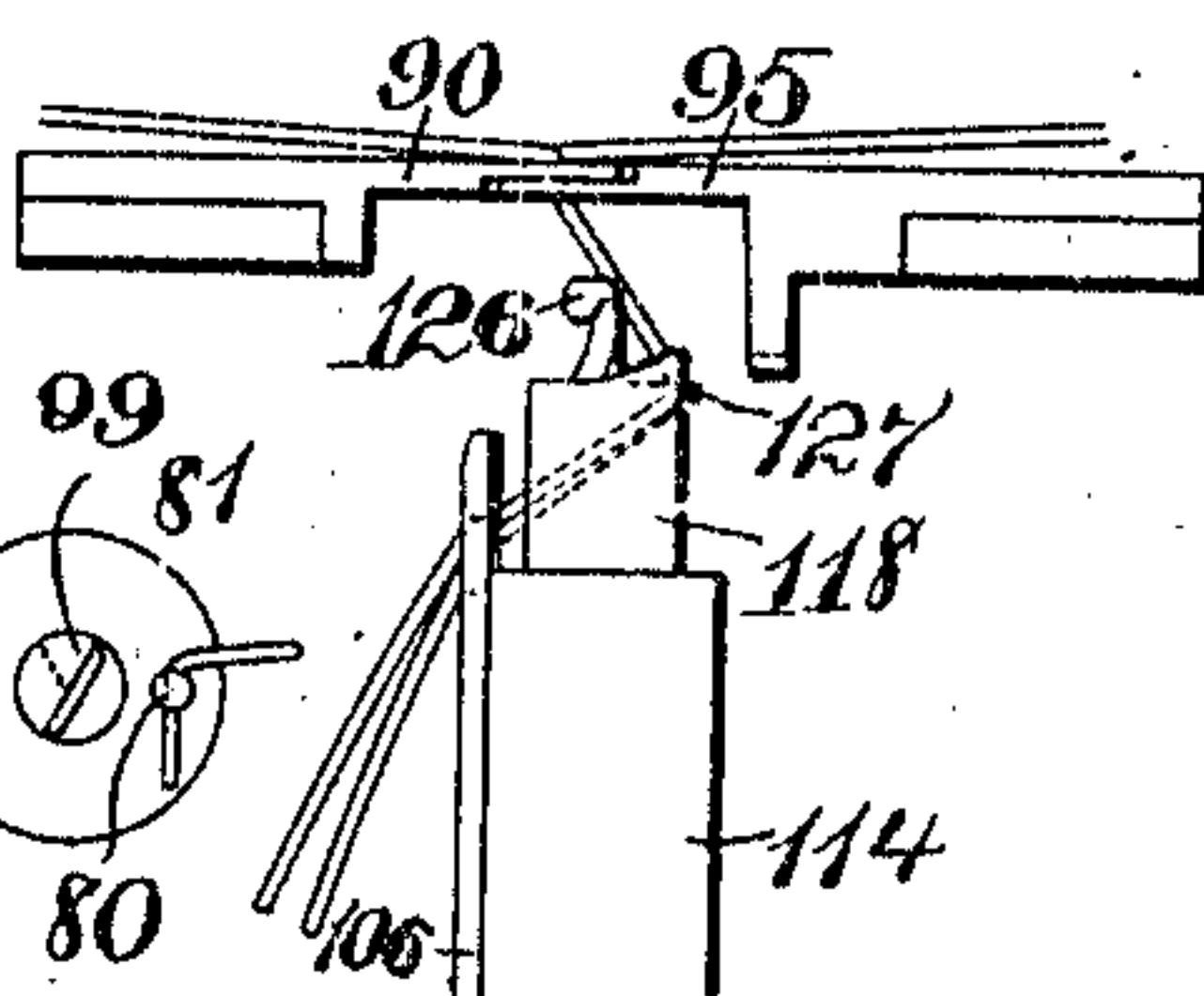


Fig. 18

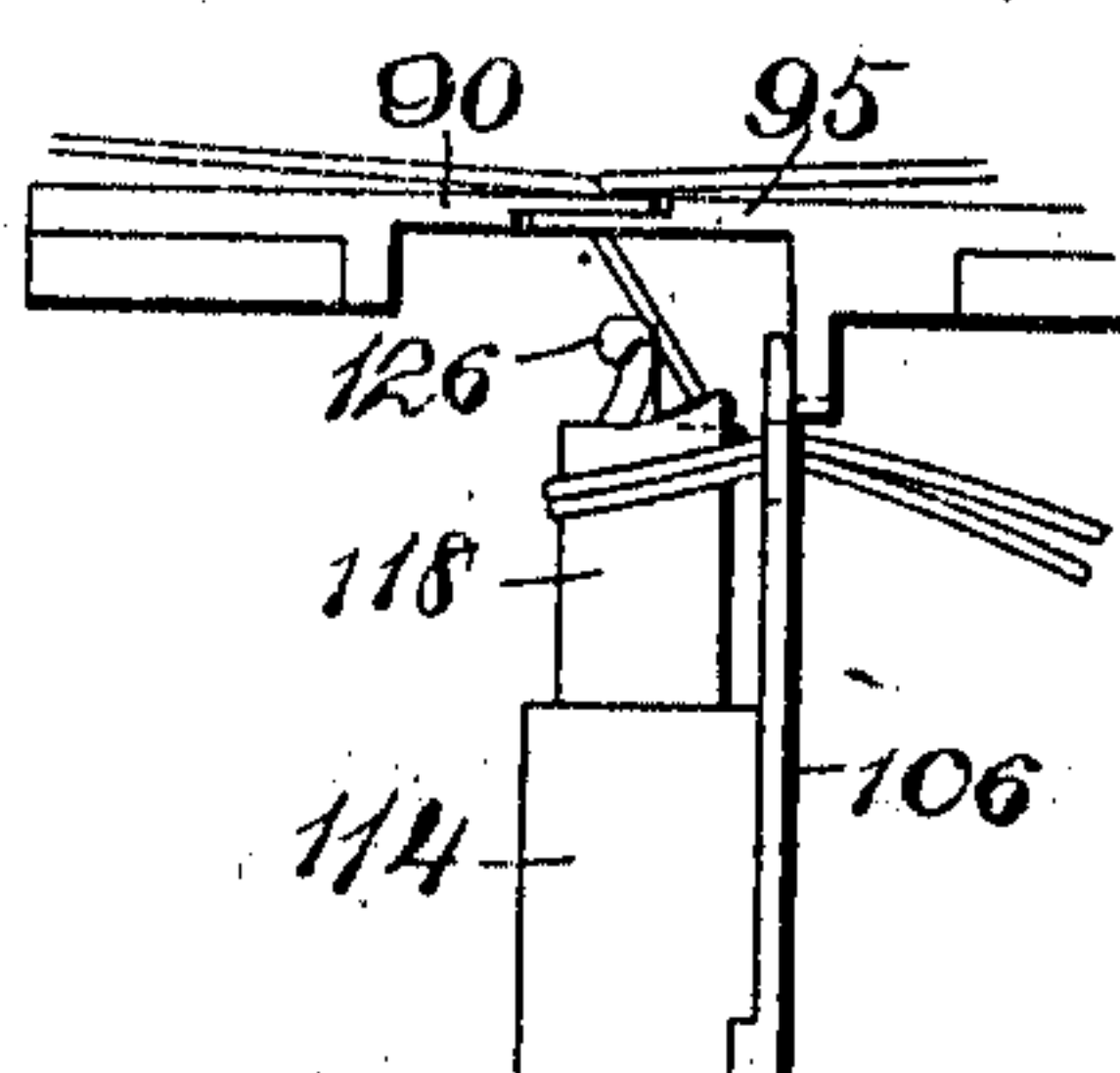


Fig. 19

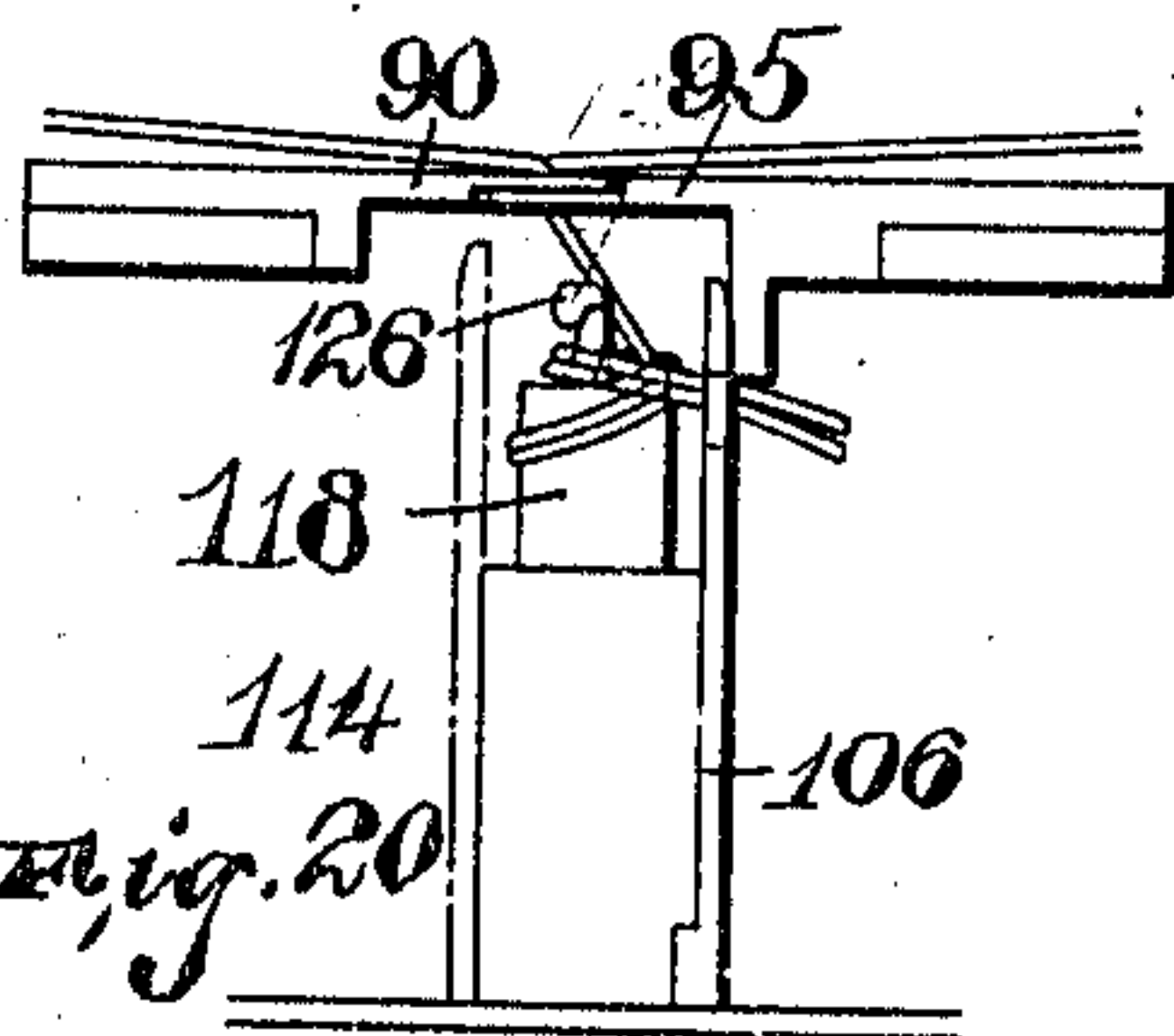


Fig. 20

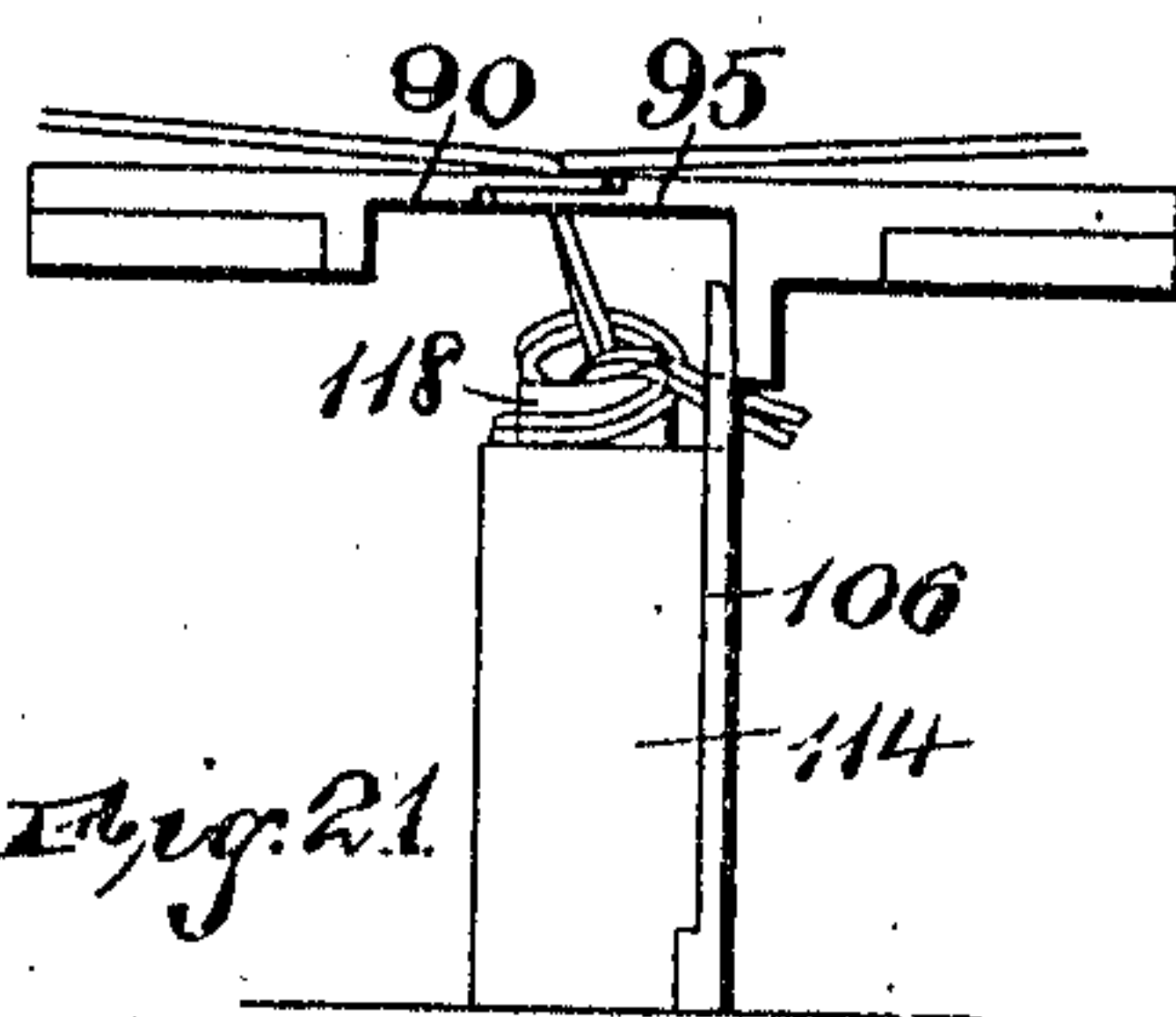


Fig. 21

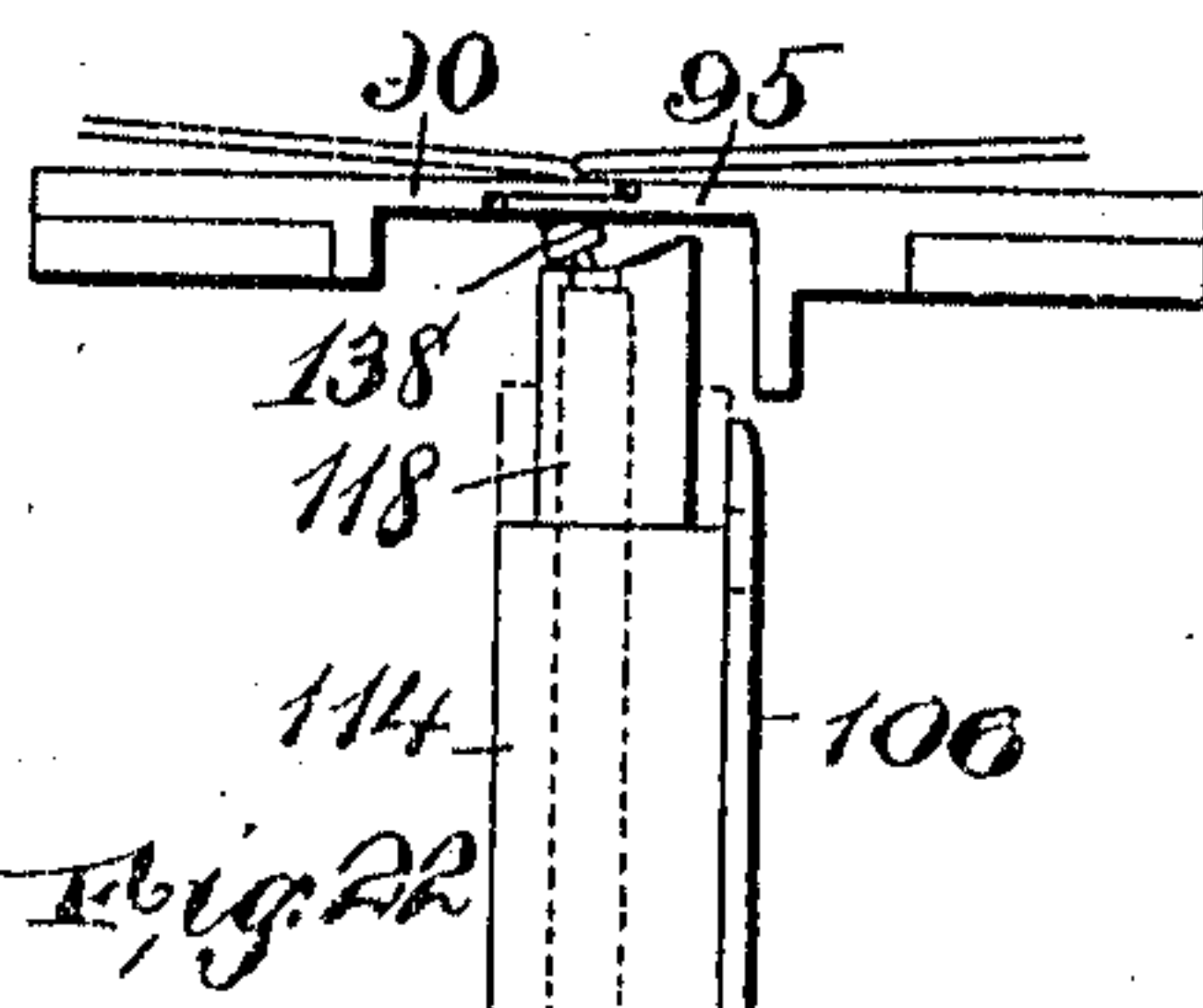


Fig. 22

WITNESSES:

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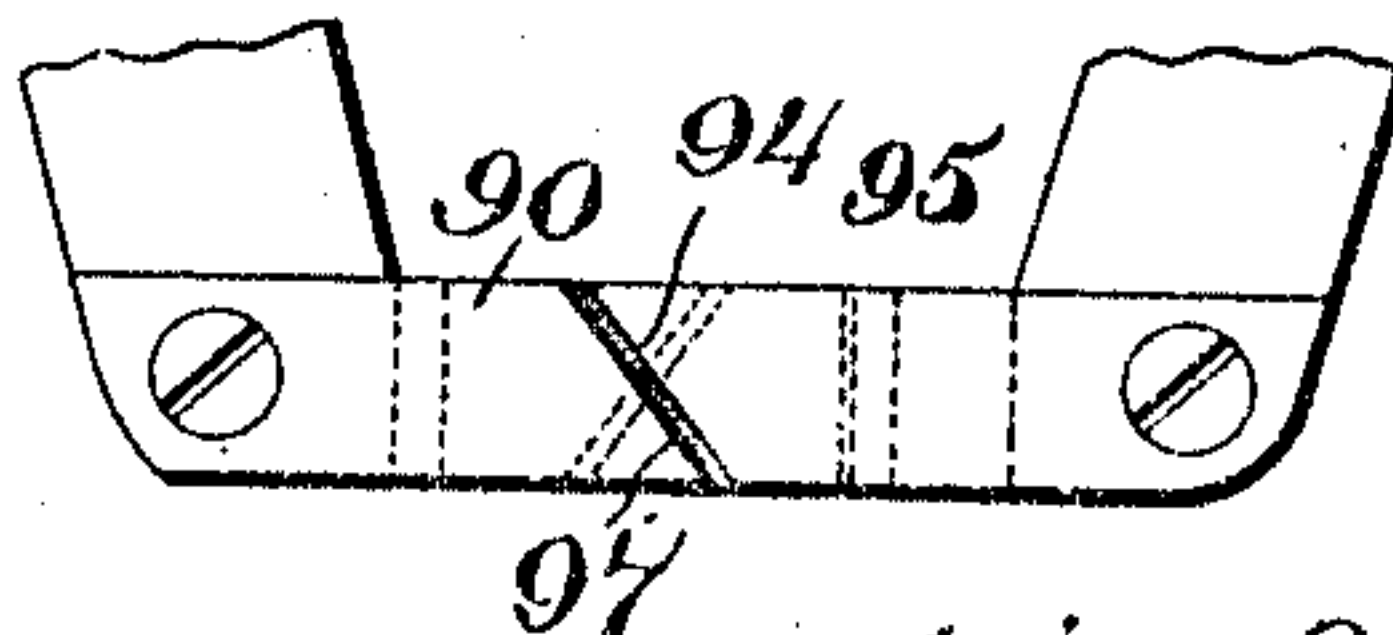


Fig. 23

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UNITED STATES PATENT OFFICE.

LUDWIG LJUNGLOF, OF NEWARK, NEW JERSEY.

MACHINE FOR WRAPPING PARCELS.

989,020.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed July 28, 1909. Serial No. 510,018.

To all whom it may concern:

Be it known that I, LUDWIG LJUNGLOF, a subject of the King of Sweden, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Wrapping Parcels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to a machine that has a table on which a bundle is placed, the table having a slot which is covered by the bundle when the bundle is in place. A holder for cord is arranged to feed an arm which swings from beneath the slot in the table around the bundle, being held from contact with the bundle by a guide, the arm returning to its normal position underneath the bundle whereby the end of the cord, which was secured previous to the rotation of the arm, and the end brought around by the arm at the completion of its rotation are brought together. The machine also has a knotting device which gathers the two ends of the cord, after the held end has been released and the other end cut, and ties them into a knot.

The device further consists in a mechanism for cutting off the strings of the knot and ejecting them from the machine so that at one operation of the machine the parcel is tied in one direction by a cord or thread, the whole operation taking but a few seconds. The bundle can again be inserted at right-angles to the previous tying if necessary, and the operation repeated.

The machine also embodies a stopping device which automatically locks the parts after one tying operation so that the machine must be manually released at each operation before it can be started, so as to insure the proper sequence of operations after the bundle is in place to be tied.

The device further consists of a paper feed which is adapted to hold paper to wrap the bundle in, the feed being arranged so as to cut the paper at any point and to feed the cut end far enough from the feed rolls to permit it to be grasped.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the machine, and Fig. 2 is a side view of the same with the treadle not shown. Fig. 3 is a top view of the knotting and cutting device and also illustrating the guiding means for the string over the knotting device. Fig. 4 is a rear view of the knotting device and the cam for operating a portion thereof. Fig. 5 is a view of the ratchet device for causing the placing of the cord around the bundle. Fig. 6 is a section showing the means of securing the hub of a cage to receive the bundle to a post which supports it. Fig. 7 is an enlarged view of the arm which feeds the cord around the bundle. Fig. 8 and Fig. 9 are views of a cam and roller for operating a finger for ejecting the ends of the knot after they have been cut. Fig. 10 is a section of the means for holding the altered ends of the cord and of the shear located between them for cutting off one end of the cord, as will be described hereinafter, and Fig. 11 is another section of the shear. Fig. 12 is a face view of the device shown in Fig. 10, but on a smaller scale. Fig. 13 is a side view of the knotter with the cam for operating the same shown in section. Fig. 14 is a section of the knotting device, and Fig. 15 is a horizontal section of Fig. 14. Fig. 16 shows a shank having a pair of spring fingers to grasp the ends of the cord before one end is cut, which fingers feed the cut ends around to form the loop of the knot. Figs. 17, 18, 19, 20, 21 and 22 are views of the knotting device showing the different steps in making the knot. Fig. 23 is a top view of two arms which gather the ends of the cord after the cord has been led around the bundle.

The device comprises the platform 10 which is supported on the legs 11. In the rear of the machine is a shaft 12 on which is pivoted a treadle 13 which serves to operate a link 14 which is connected to a chain or other suitable flexible strand 15 which passes over a pulley or sprocket 16 which is loosely arranged on the main shaft 17. A spring 17^a bears on one end against a cam 43, to be hereinafter described, and on the other end against the sprocket 16 to normally force the ratchet on the other side of the sprocket against a pin which is secured to the main shaft 17. Thus when the treadle is pushed

down by the foot, the sprocket 16 bears with its ratchet against the pin 20 and rotates the main shaft 17 which is connected, as will be hereinafter described, to operate the rest of the machine. This movement of operation also pulls the other end of the chain 15, shown in Fig. 1, so that it pulls on the piston rod 24 secured to a piston 23 arranged in a cylinder 22, in which cylinder is arranged a spring 21 to normally resist a pull from the chain 15. The cylinder is held at its other end by a suitable hook 25 or any other fastening means. When the foot is taken from the treadle, the sprocket 16 is caused to rotate in the opposite direction by the action of the spring 21, but the piston 23 serves as a check to regulate the action of the sprocket and the treadle so that they do not race, but are timed so as to prevent clatter and jar. On the return the sprocket 16 does not operate the shaft because the ratchet 19 slides over the pin 20. This arrangement of parts assures the operation of the main shaft 17 and the rest of the apparatus in only one direction.

On the front of the platform 10 is arranged, in suitable brackets, a shaft 26 which holds a roll of paper 27, the end of the roll, as 28, being passed up between the rolls 29 and 29^a. The roll 29^a has a ratchet 30 therein which is adapted to be operated by a pawl 31 normally held in place by a spring 34 and pivoted to a slide 32 which is arranged on the under side of the table 35. The slide 32 is operated by means hereinafter described to force the end of the paper 28 up to present enough to be grasped by the fingers beyond the knife 37 which is held on a bar 38, against which knife the paper is pulled to cut it. A spring 33 is fastened to a pin 36 on the slide 32, and on the other end is secured to a bracket 40 which is also shown in Fig. 3, which bracket has, on its ends, the wings 39 which hold up the table 35.

The main shaft 17 is supported on its rear end in a bearing 41 arranged on a post 42. A cam 43 is fastened to the main shaft 17 and has its periphery formed, as shown in Fig. 4, with the cam surface 44.

A standard 45 supports one end of a shaft 46, the other end being supported in the post 42. A spring 47 has one end secured in the standard 45, as at 48 in Fig. 2, and has the other end secured to a collar 49, which collar is fastened to the shaft 46. This spring has a tendency to constantly press the arm 50 with its roller 51 against the cam surface 44. When the cam surface of the larger radius forces the arm 50 around as shown in Fig. 2, it strains the spring 47 and swings the lever 52, which is fastened to the shaft 46, and with the lever 52, the pawl 53 shown in Fig. 5. This pawl engages the recesses 54 placed at intervals in a flange 55 projecting over a gear 56, which gear is loosely mounted on

the shaft 46. When the cam surface with the short radii comes underneath the roller 51 it permits the arm 50 to be swung around by the spring 47 acting on the shaft 46, and the lever 52 with its spring pawl 53 then drops down to engage the next succeeding recess, and in this way the amount of rotation of the gear 56 is regulated. The gear 56 is in mesh with a second gear 57 which in turn rotates a gear 58 which is mounted on a sleeve 59, which sleeve is rotatable on a stud 60 projecting from the post 42. The sleeve 59 has a bar 61 projecting therefrom, and on the end of this bar is an arm 62, the arm being pivotally secured on its one end to the end of the bar 61, and being adapted to bear against a rim 63 preferably made of wire which forms the edge of a cage, and is supported by the spider 64, which spider is fastened to a hub 65 which is secured by bolts 66 as shown in Figs. 2 and 6. The arm 62 is normally held against the rim 63 by a spring 67, although this particular kind of spring can be altered to suit.

Acting as a balance and also so placed on account of its accessibility and convenience, is a holder 68 which is adapted to hold cord or thread which is fed out through an opening 69 in the front thereof, this thread passing through a tension device 71, then down over a small pulley 72 and back over a second pulley 73, which pulley is mounted on a slide piece 74, and a tension is applied thereto which pulls or lengthens out a spring 75 which is fastened on one end to a pin 76 on the bar 61. The cord then passes over a pulley 77 and then to the end of the arm 62, which arm is provided, as shown in Fig. 7, with a spring finger 78 which is light enough to allow the cord to be snapped into place and has the two disks 79 with V-shaped peripheries, which disks are rotatable and form an easy feed for the cord.

When the treadle 13 is manually operated and it causes the rotation of the cam 43 as above described, the bar 61 is swung around on the sleeve 60 by the gears and the spring 47. One end of the string or cord 70 is held by one of two hooks 80 which are alternately in use for this purpose. Each hook slides in the hub 81 and is normally forced in by a spring 82 and out by a cam 83 fastened to the machine frame. The hub revolves by reason of the gear 84 meshing with a gear 85 which is operatively connected, as in Figs. 1 and 2, with the star-wheel 86 operated by a set of pins 87 on the disk 88. One of the hooks, as above described, holds one end of the cord 70, as in Fig. 12, and then the arm 62 swings around the rim 63 of the cage, and a bundle, resting on the tablet 35^a which is fastened to the hub 65, is encircled with the cord by reason of the slot 89 in the table or between the parts of the table. As the arm carrying

the cord begins to swing, the finger 90, pivoted at 91, is swung, by the cam groove 92 acting upon the stud 93, see Fig. 1, to the center of the machine, and being formed with a groove or V-shaped end 94 holds the cord up close to the bundle on its under side. As the arm with the cord completes its rotation it carries the other end of the encircling part of the strand so that it is gathered with the part in the finger 90 by a finger 95 similar to the finger 90, and also swung by a cam groove 96 in the disk 88, the finger 90 also having a V-shaped or grooved end 97, and the V-shaped ends overlap on opposite sides as in Fig. 23 so that the cord is drawn taut and to one point. On the completion of the rotation of the arm 62 carrying the cord, it rides up on the curved part 98, Fig. 1, and catches the cord under the other hook 80 so that both ends of the loop are fastened as in Fig. 4, the hub and its fingers having been rotated to receive the cord. When held as in Fig. 4, the cord is passed across a hook-end 99 of a cutter which is mounted in the center of the hub and is flattened on one side to receive a flattened slide-piece 100 which has an edge to have a shearing cut against the hook-end 99. The slide-piece is thrust forward to sever the cord at the right time by the lever 101 which in turn is actuated by the cam groove 102 in the disk 88. Immediately after this cutting the ends of the cord are free as in Fig. 17, one end due to the cutting and the other end by its release due to its hook 80 riding out on the cam 83. The arm carrying the cord around the bundle is now at rest and remains so until the next wrapping is accomplished, the spring 47 in the meantime forcing the lever 52 and the pawl 53 downward to engage the next recess 54 in the flange 55. This is possible, as the small radius surface of 44 is engaging the roller 51 of the arm 50. The slide 74 has a pin 103 which engages the spring or stop 104 on the arm 105 of the hub 59, thus holding the arm 62 against any forward movement. Just before the cords between the fingers 90 and 95 and hooks 80 are cut and while they are still taut, a grasper or double hook 106, with a pair of spring arms 107, has its flaring or beveled opening 108 forced up and it opens to receive the cords holding them by its spring action, and as it grasps the cords they are cut and are free to be manipulated. The double hook 106 is slid upward by a block 109 in which it is free to rotate, since the block is grooved to receive the lip 110 of the double hook. The block slides along with other blocks to be hereinafter described, in a way or slot formed in a casing 111 secured on the standard 18 as in Figs. 2 and 15. The block 109 has a pin or stud 112 which is moved by the cam slot 113 in the cam 43. The block 109 surrounds an outer

sleeve 114 which itself has a block 115 which has a stud 116 fitting in the cam slot 117 of the cam 43. Within the outer sleeve is an inner sleeve 118 which is supplied with a block 119 which in turn has a stud 120 fitting in the cam slot 121. Within the inner sleeve is a stem 122 which is provided at its bottom with a block 123 having a stud 124 actuated by the cam slot 125. The double hook, the inner and outer sleeves and the stem all have independent movements and are adapted to slide on and within each other longitudinally. When the double hook has grasped the string as shown in Fig. 4, its cam then operates to pull the block 109 downward to the position shown in Fig. 17. In the meantime the inner and outer sleeves and the stem 122 with its hook 126 are all moved upward. The inner sleeve has a lip 127 formed on the end of a spring strip 128, and when the outer sleeve has its top edge lower than the top edge of the inner sleeve, the finger 127 projects slightly. The double hook 106 is also in sliding engagement with a hollow gear 129 which now begins to rotate, due to the travel of the rack 130 which is operated by the arm 131 which is pivoted at 132 and has a roller 133 acting on the cam surface 134 which is placed on the rear of the cam 43. A spring 135 tends to return the arm 131 to its normal position. When the block 109 has pulled down the double hook as far as shown in Fig. 17, the rack 130 commences to rotate the gear 129 and with it the double hook, and the two strands of cord are caught under the lip or finger 127, as shown in Fig. 18, and the double hook makes a complete rotation, sliding again slightly upward to the position shown in Fig. 19, and once again around to the position shown in Fig. 20, this second rotation being higher than the first and causing the two cords to pass under the hook 126. As soon as they have arrived in this position the stem 122, along with its hook 126, is pulled down carrying the two cords that were under the hook along, causing the formation of a loop as in Fig. 21, the outer sleeve 114 at the same time being forced upward by its cam to cause the loops to be shed from the inner sleeve, and also permits inward play of the finger 127 so that the loops are free to be rolled up along the thread by the inner sleeve as shown in Fig. 22, the hook 126 still keeping the ends of the cord taut because, when the hook has disappeared, the shell 136 closes up against the hook 126, tightly binding the cord by reason of the action of the spring 137. The outer sleeve, the inner sleeve, the single hook and the double hook are now all returned to their normal positions, the double hook rotating at the return of the rack 130, this leaving simply two straight strands from the tight knot 138, shown in

Fig. 22, and extending down disappearing in the opening in the inner sleeve. These two straight strands between the knot and the ends of the cords are now cut off by a pair of pivoted blades 139 which are pivoted at 140 and are operated by the links 141, each link being secured on one end to a blade, the blades being L-shaped and being pivotally secured at the other end, as at 142, to a lever 143 which is operated by the cam slot 102 in the disk 88. A rod 144 is mounted in the frame and is provided with a roller 145 which is engaged by a cam 146. The cam engages the roller just before the strings are cut by the blades 139 so that the finger 147, having a right-angled end 148, engages the two strands below the point where they are to be cut. As soon as the cutting takes place the cam 146 further operates the stem to throw the finger 147 around with a snap. A spring 149 has a head 150 on its end which is released when the snapping takes place to allow the two loose ends of the cord to fly or to be ejected from the machine. When the machine is to be again operated, the pin 103 must be released from the stop 104. This is done by throwing the handle 151, which is on the end of the lever 152, over so that the pin 153 on the block 74 is engaged and this slides the block 74 and its pin 103 up toward the hub 59 until the pin 103 clears the end of the stop 104, and the stop 104 by that time being under some strain will snap back so that the pin 103, when it slides down again, will slide on the top of the stop 104. This throwing over of the lever 152 also causes some cord to be drawn from the cord receptacle 69, and thus gives some slack when the machine is started so that the starting of the machine is not difficult, due to any strain on the tension. The end of the lever 152 is formed into an arm 154 having a flange 155 which is engaged by a pin 156 on a collar 157, which collar is fastened to the main shaft 17. When this handle is thrown over the main shaft is free to rotate, and after one rotation of the shaft, caused by one operation of the machine, it will be locked both by having the bar 61 up against the stop 104, and also by having the pin 156 abutting on the flange 155.

It takes the machine but a few seconds to put the cord around a bundle, tie the knot, cut the cord and eject the ends. If after one tying more is desired, the bundle can be swung around inside the cage 64 and another tying effected at right-angles to the first one, or at any other suitable point. Having thus described my invention, what I claim is:—

1. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, means for leading a cord around the package and

through the slot, a knotting device for tying the ends of the cord, means for securing the end of the cord before it encircles the package, said means also acting to release that end of the cord after the cord encircles the package, means for grasping the other end of the cord before the former end is released, and means for cutting the end of the cord last secured between the grasping means and the package.

2. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, means for leading a cord around the package and through the slot, means for drawing the cord taut, means for securing the end of the cord before it encircles the package, said means also acting to release that end of the cord after the cord encircles the package, said means also securing the cord after it encircles the package, a cutting device for severing the end of the cord last secured between said securing means and the package after it encircles the package, and a knotting device for tying the ends of the cord.

3. A parcel tying machine comprising a table having a slot therein, said table being adapted to support a package, means for leading a cord around the package and through the slot, means for securing the end before and after it encircles the package and releasing that end after the cord encircles the package, a cutter for severing the end of the cord last secured between the securing means and the package after it encircles the package, means for releasing the end of the cord secured before the package was encircled, and a device for tying the loose ends of the cord.

4. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, means for leading a cord around the package and through the slot, means for drawing both ends of the cord to make it taut, means for securing the end of the cord before and after it encircles the package, a cutter for severing the end of the cord last secured between the securing means and the package after it encircles the package, means for releasing the end of the cord secured before the package was encircled, and a knotting device for tying the ends of the cord.

5. A parcel tying machine comprising a table having a slot therein, the table being adapted to support a package, a cage on the table having an open side to receive the package, means for leading a cord around the package and through the slot, the leading means passing around the cage, means for securing the cord before and after it encircles the package, a cutter for severing the cord between the securing means and the package after it encircles the package,

means for releasing the end of the cord secured before the package was encircled, and a knotting device for tying the loose ends of the cord.

5 6. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, a cage on the table and having an open side adjacent to the slot in the table, the open side permitting the passage of the package into the cage, means for leading a cord around the package and through the slot, a knotting device for tying the ends of the cord, and means for cutting the cord after it encir-
10 cles the package.

7. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, a cage on the table having an open side, the cage having
20 a rim at the open side, means for leading a cord around the package and through the slot, the leading means being guided by the rim of the cage, a knotting device for tying the ends of the cord, and means for cutting the cord after it encircles the package.

8. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, a cage on the table, the cage having an open side and hav-
30 ing a rim on the open side, means for leading a cord around the package and through the slot, means for holding the ends of the cord in the slot after the package is encircled, a knotting device for tying the ends of the cord, and means for cutting the cord after it encircles the package.

9. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, a cage on the table having an open side, the cage having a rim around the open side, means for lead-
40 ing a cord around the package and through the slot, the leading means bearing on the rim of the cage, means for drawing the cord taut after it encircles the package, means for securing the end of the cord before it encir-
45 cles the package, said means also securing the cord after it encircles the package, a cutter for severing the cord between the tightening means and the securing means after it encircles the package, means for re-
50 leasing the end of the cord secured before the package was encircled, and a knotting device for tying the loose ends of the cord.

10. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, an arm for leading a cord around the package and through the slot, the cord passing from the cord receptacle, means for securing the end of the cord before it encircles the package, said means releasing that end of the cord after the package is encircled, means for secur-
60 ing the cord after it encircles the package, means for drawing the cord taut after it en-

circles the package, a knotting device for tying the ends of the cord adjacent to the tightening device, and means for cutting the end of the cord last secured after it encircles the package.

11. A parcel tying machine comprising a table having a slot therein, said table being adapted to support a package, a cord receptacle, an arm having means in its end for guiding a cord, means for rotating the arm
75 whereby the arm leads the cord around the package and through the slot, means for securing the end of the cord before and after it encircles the package, said means acting to release the end of the cord first secured
80 after the package is encircled, a cutter for severing the end of the cord last secured between the securing means and the package after the cord encircles the package, means for releasing the end of the cord secured be-
85 fore it encircled the package, and a knotting device for tying the loose ends of the cord.

12. A parcel tying machine comprising a table having a slot therein, the table being adapted to support a package, a cage on the table having an open side adjacent to the slot in the table, a cord receptacle, a bar adapted to be rotated and having an arm arranged to bear on the edge of the open side of the cage and on the bottom of the
90 table, the end of the arm being adapted to lead cord from the receptacle so that it encircles the package, means for securing one end of the cord beneath the table before the package is encircled, said means also secur-
95 ing the cord after the arm has caused the cord to encircle the package, a cutter for severing the cord between the securing means and the package after it encircles the package, means for releasing the end of the
100 cord secured before the package was encircled, and a knotting device for tying the loose ends of the cord.

13. A parcel tying machine comprising a table having a slot therein, a cage on the table having an open side adjacent to the slot, the open side having a surrounding rim arranged to pass underneath the table, a cord receptacle, a bar, an arm swinging on the end of the bar, means for constantly
110 forcing the arm in contact with the rim of the cage, means for securing the cord beneath the slot, said means securing the cord before and after it encircles the package, a knotting device for tying the ends of the
115 cord, and means for cutting the cord after it encircles the package.

14. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, a guiding rim
125 arranged above the table adjacent to the slot and having its ends arranged beneath the table, a cord receptacle, a bar rotatably arranged on the machine, an arm arranged to swing on the bar and bear on the rim and
130

rotate with the bar whereby the arm and bar when swung are arranged to lead cord from the cord receptacle around the package, means for securing the end of the cord before the package is encircled, said means also securing the cord after the package is encircled, means for cutting the cord after it encircles the package, and a knotting device for tying the ends of the cord.

15 15. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, a guiding rim arranged above the table adjacent to the slot and having its ends arranged beneath the table, a cord receptacle, a bar rotatably arranged on the machine, an arm arranged to swing on the bar and bear on the rim and rotate with the bar whereby the arm and bar when swung are arranged to lead cord from the cord receptacle around the package, means for securing the end of the cord before the package is encircled, said means also securing the cord after the package is encircled, means for cutting the cord after it encircles the package, a knotting device for tying the ends of the cord, means for manually operating the machine, and an operative connection between the manually operated means and the leading means the cutting device and the knotting device for causing their operation in the proper sequence.

35 16. A parcel tying machine comprising a table having a slot therein, a support for the table, a main shaft rotatably arranged in the support, a treadle, a connection from the treadle to the main shaft to cause the rotation of the main shaft, a guiding rim on the table above and adjacent to the slot, a cord receptacle, a bar rotatably arranged, means for rotating the bar from the main shaft, an arm swinging on the end of the bar, means for constantly holding the end of the arm in contact with the rim, means in the end of the arm for guiding a cord, whereby when the arm is rotated the cord encircles the package, means for securing the end of the cord before and after it encircles the package, means for cutting the cord after it encircles the package, and a knotting device for tying the ends of the cord.

55 17. A parcel tying machine comprising a table having a slot therein, a support for the table, a main shaft mounted in the support, a treadle, means for rotating the main shaft from the treadle, a cord receptacle, a guiding rim above and adjacent to the slot in the table, a bar adapted to rotate, means for rotating the bar from the main shaft, an arm swinging on the end of the bar, the arm having means in its ends for guiding a cord, means for forcing the arm in constant engagement with the guiding rim, means under the slot in the table for securing the cord before and after the package is encircled,

means for drawing the ends of the cord taut between the package and the securing means, a cutter for severing the cord after it encircles the package, and a knotting device underneath the tightening device for tying the ends of the cord.

18. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, means for leading a cord around the package and through the slot, a rotating hub having a pair of hooks, means for causing one hook to lock the end of the cord against the hub before the package is encircled, said means causing the second hook to engage the cord after the package is encircled, means for drawing the cord taut around the package, a cutter for severing the cord between the second hook and the tightening means, the first hook being adapted to be released when the cutter operates, and a knotting device for tying the ends of the cord.

19. A parcel tying machine comprising a table having a slot therein, the table being adapted to receive a package, a main shaft, means connected with the main shaft, said means acting to lead a cord around the package and through the slot, means for securing the cord before and after it encircles the package, means for cutting the cord after it encircles the package, an operative connection between the securing means and the main shaft, a knotting device comprising a double hook, an outer sleeve, an inner sleeve and a stem arranged to slide longitudinally on each other, means for rotating the double hook, a hook on the end of the stem, a cam on the main shaft having grooves, and studs on the double hook, the outer sleeve, the inner sleeve and the stem for actuating them to tie a knot in the ends of the cord.

20. A parcel tying machine comprising a table having a slot therein, said table being adapted to support a package, a main shaft mounted below the table, means for leading a cord around the package, means for securing the cord before and after it encircles the package, means for tightening the cord, a connection for operating the securing means from the main shaft, a knotting device comprising a double hook arranged to grasp the cord between the tightening device and the securing means, a cutter for severing the cord after it is engaged by the double hook, an outer sleeve having an inner sleeve therein, a stem in the inner sleeve, the stem having a hook on its end, means for rotating the double hook, a cam on the main shaft having cam grooves, and studs on the double hook, the outer sleeve, the inner sleeve and the stem for causing their independent longitudinal operation for tying the ends of the cord.

21. A parcel tying machine comprising a table having a slot therein, the table being

adapted to receive a package, means for
leading a cord around the package, means
for securing the end of the cord before and
after it encircles the package, fingers adapt-
5 ed to engage the cord adjacent to the means
for securing the ends thereof, the fingers be-
ing adapted to engage the two ends of the
cord and draw the cord taut around the
package, the engaging portion of the fingers
10 being constructed to center the cord, a knot-
ting device to engage the tightened cord be-

tween the fingers and the securing means
and tying the loose ends of the cord, and
means for severing the cord immediately
after its engagement by the knotting device. 15

In testimony, that I claim the foregoing,
I have hereunto set my hand this 24th day
of July 1909.

LUDWIG LJUNGLOF.

Witnesses:

E. A. PELL,

WM. H. CAMFIELD.