

No. 843,487.

PATENTED FEB. 5, 1907.

F. W. PARE & J. C. RICHMOND.

MACHINE FOR THREADING AND UNTHREADING LACE MACHINE CARRIAGES.

APPLICATION FILED APR. 14, 1905.

6 SHEETS—SHEET 1.

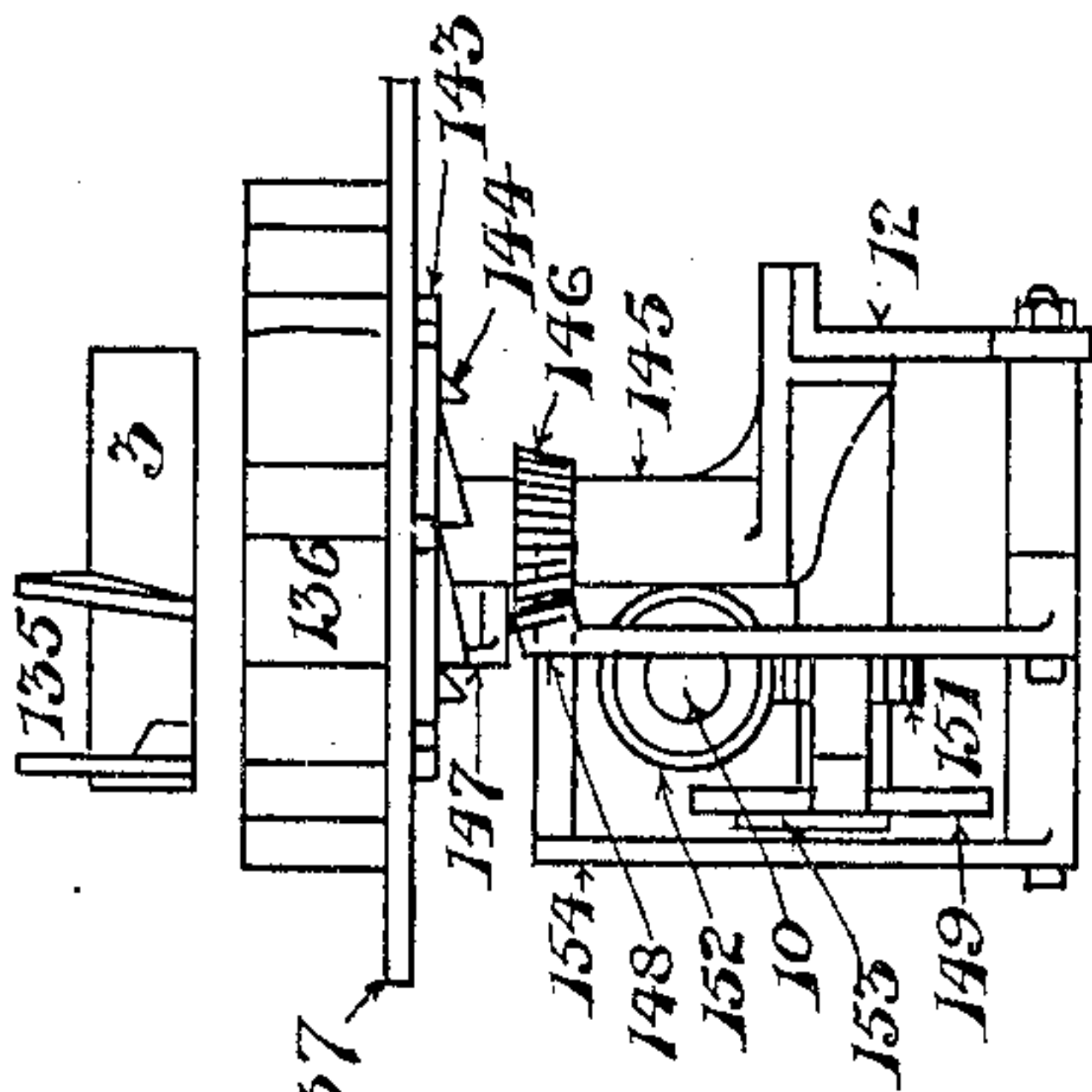
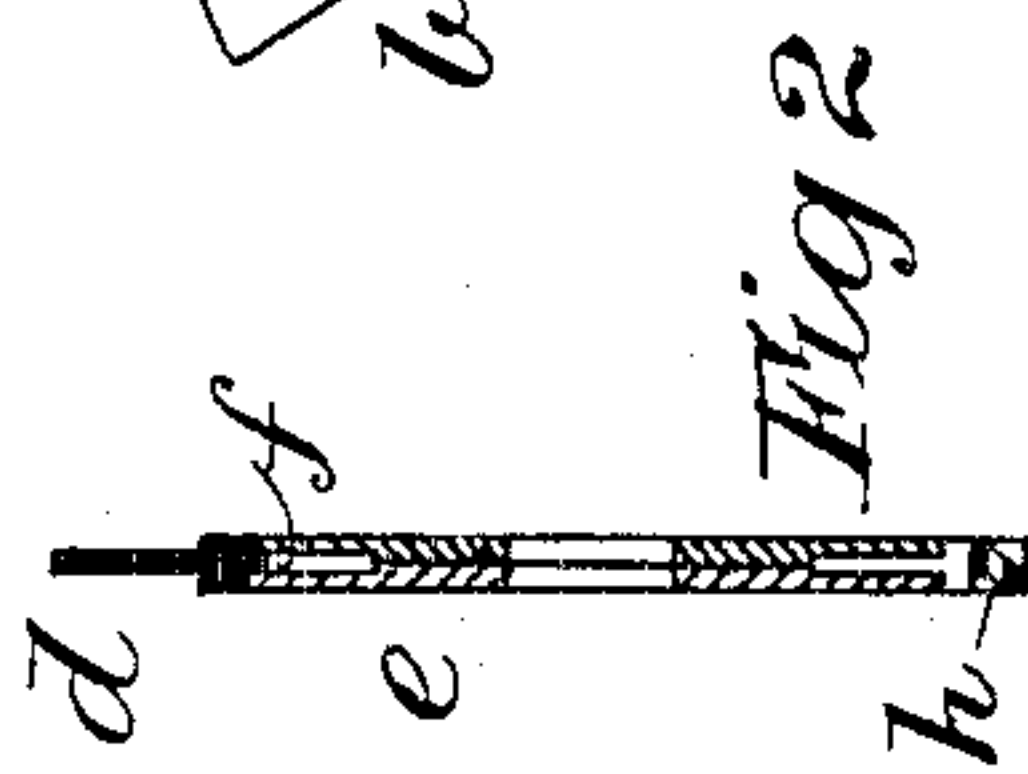
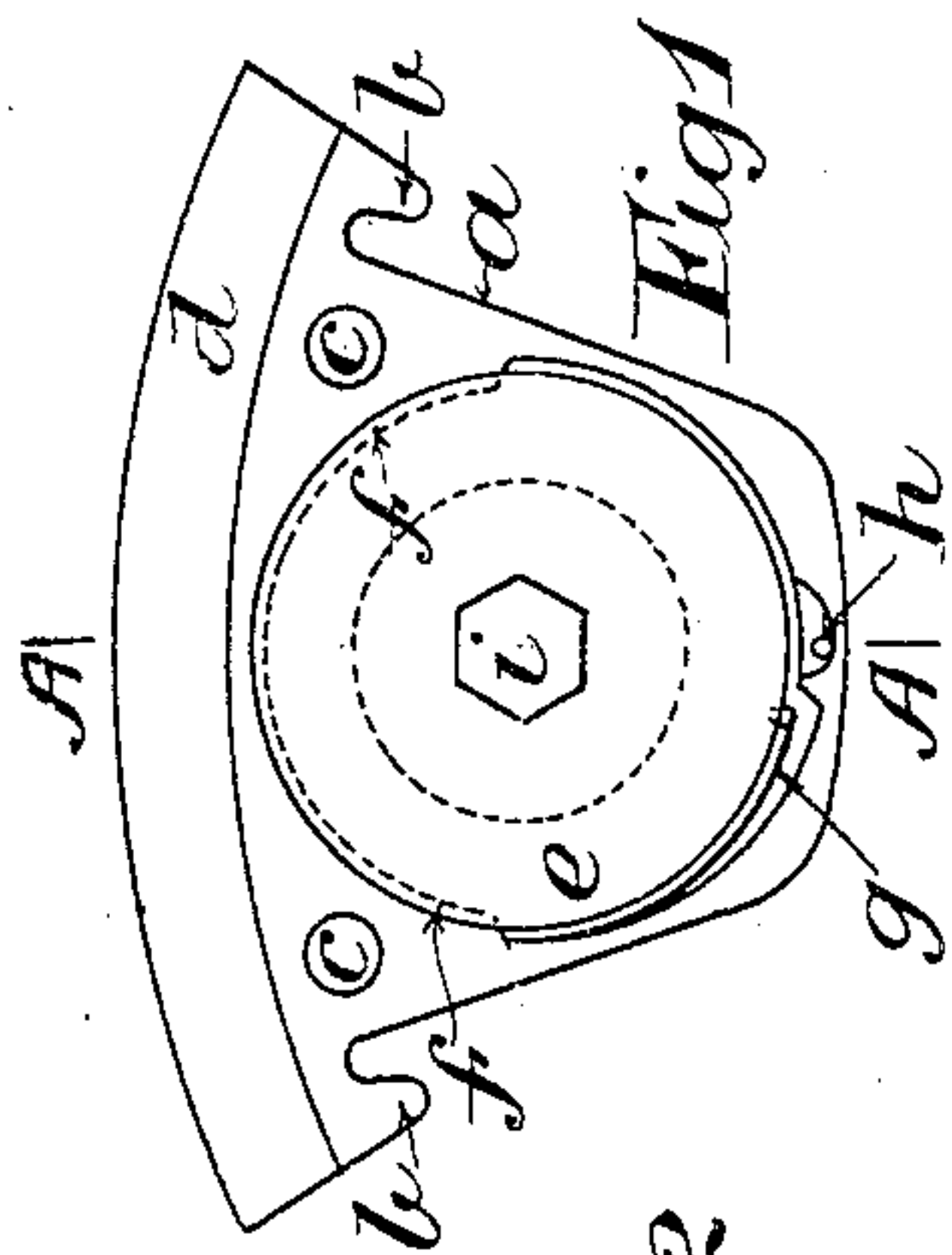


Fig 4

Fig 5

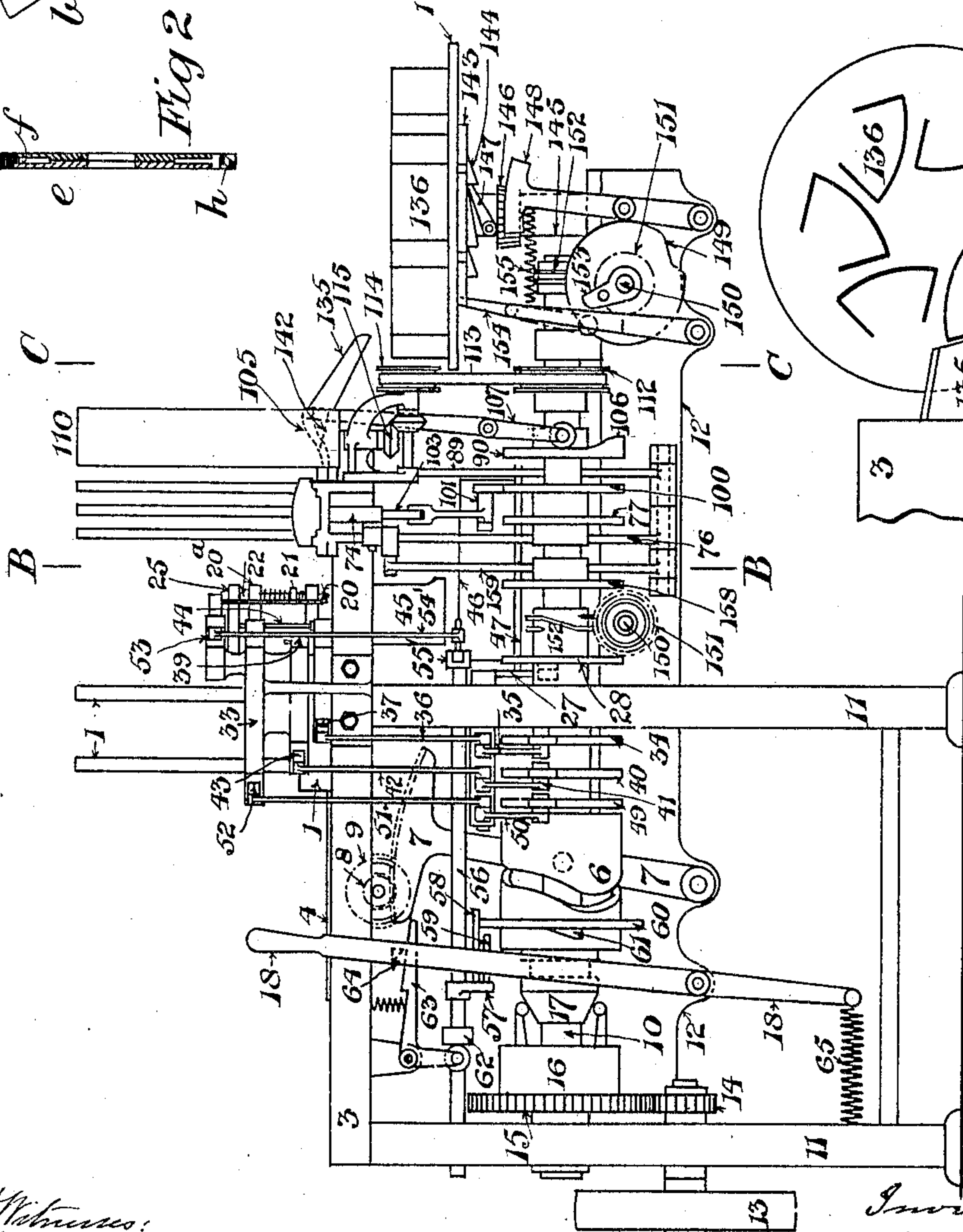


Fig 3

Witnesses:  
Geo. B. Pitts  
H. N. Low

Inventors:  
Frederick William Pare and  
John Charles Richmond  
By J. S. Barker  
Atty.

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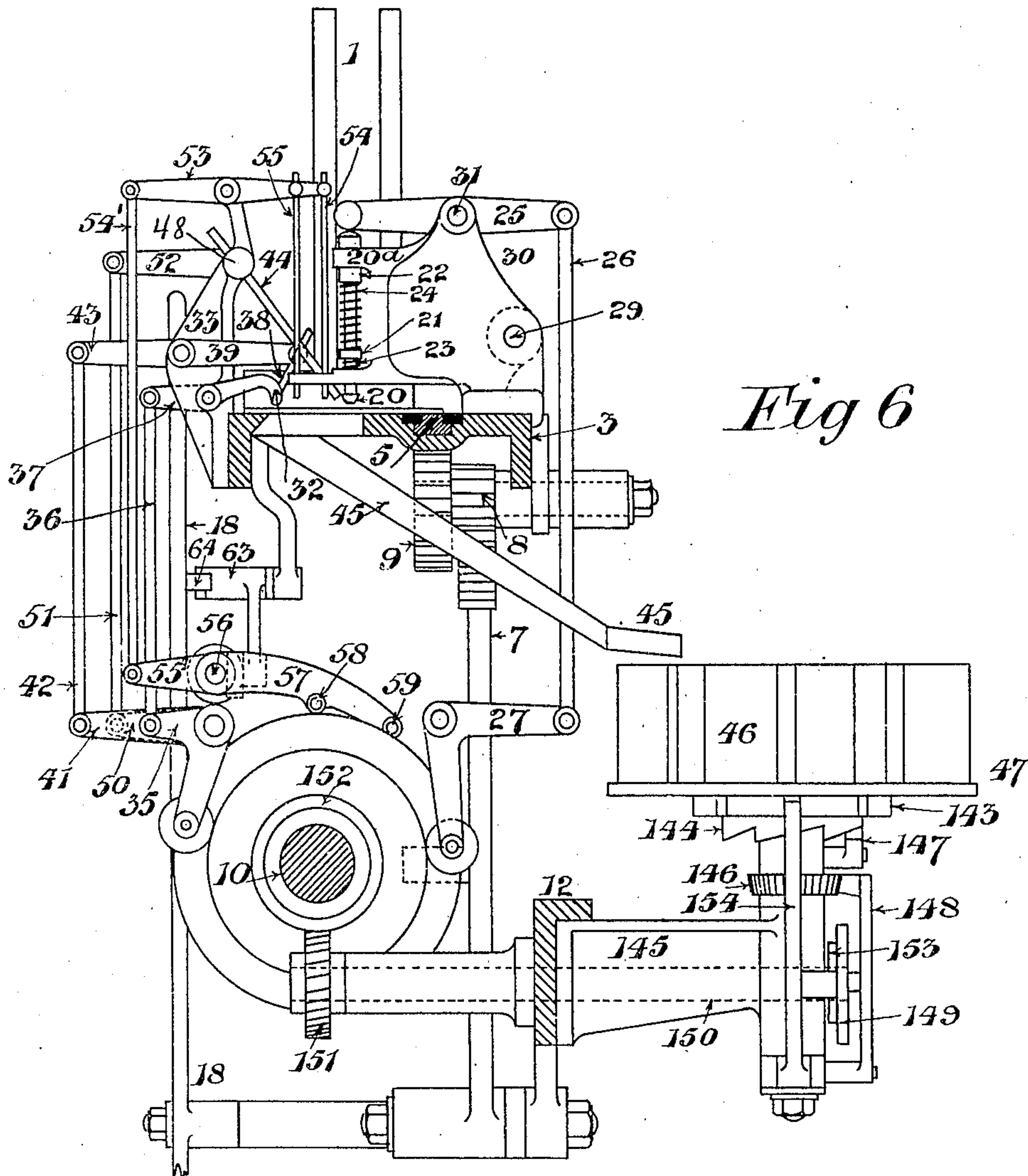


Fig 6

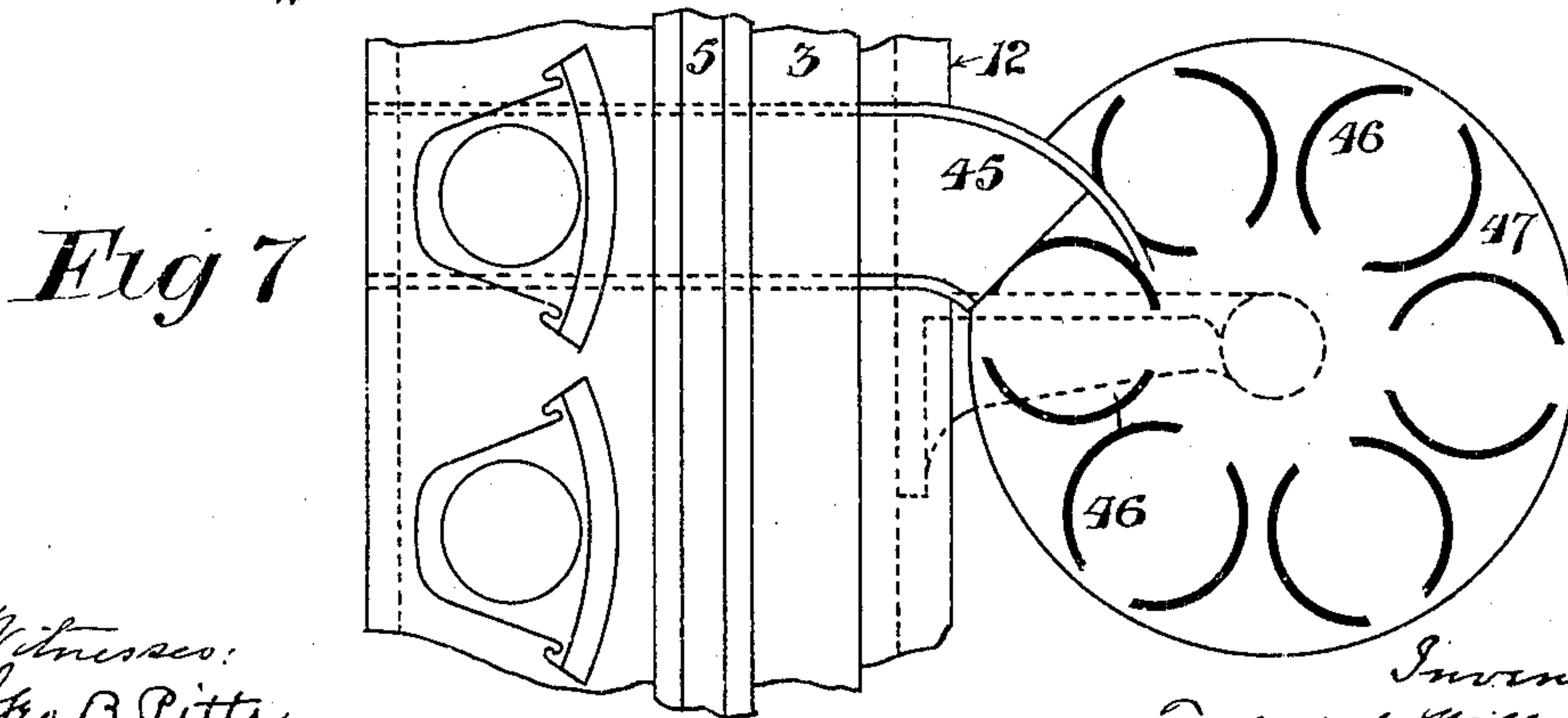


Fig 7

Witnesses:  
Geo. B. Pitts,  
H. N. Low

Inventors:  
Frederick William Pare  
and John Charles Richmond,  
By J. S. Barker atty.

No. 843,487.

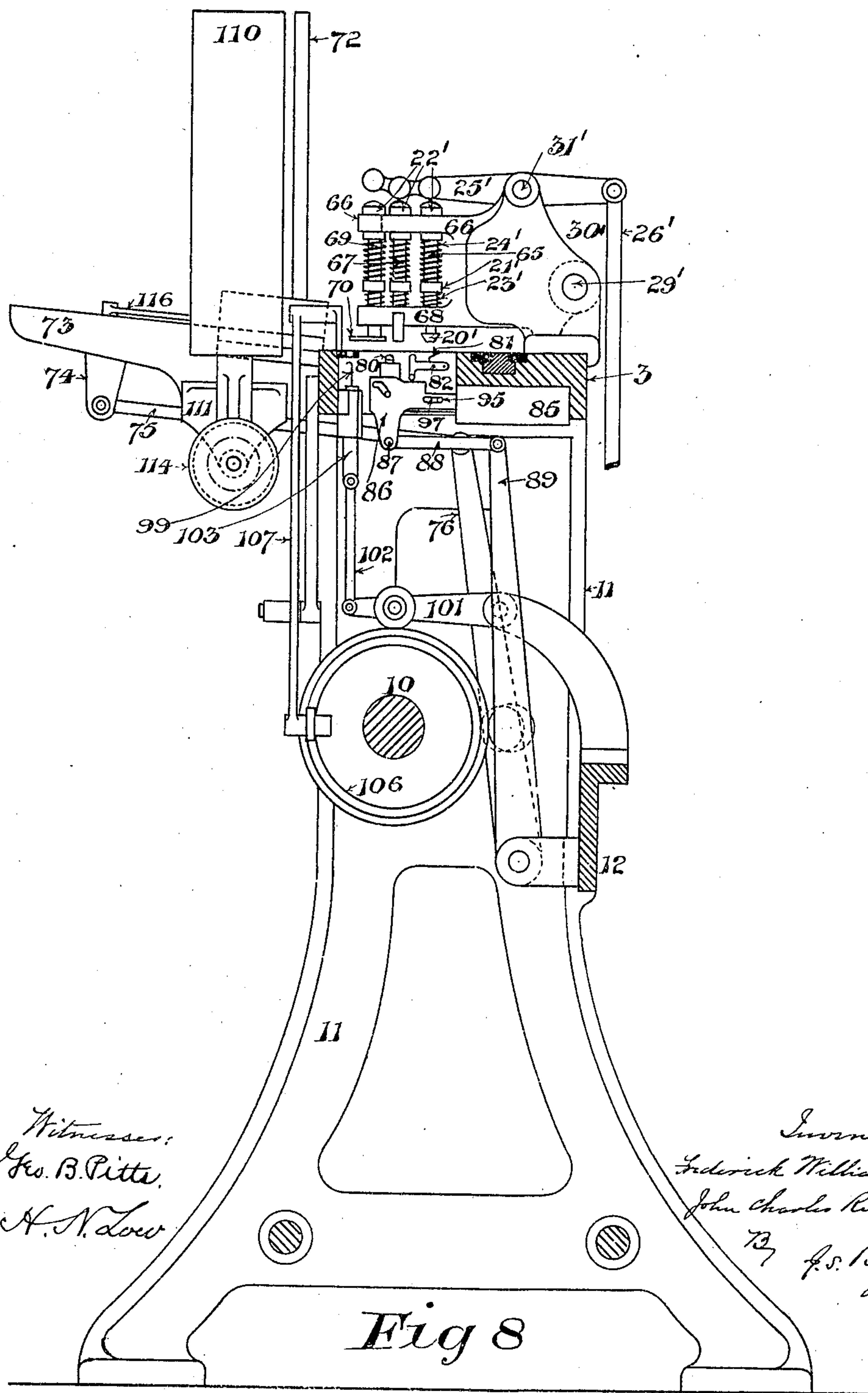
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6 SHEETS—SHEET 3.





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6 SHEETS—SHEET 4.

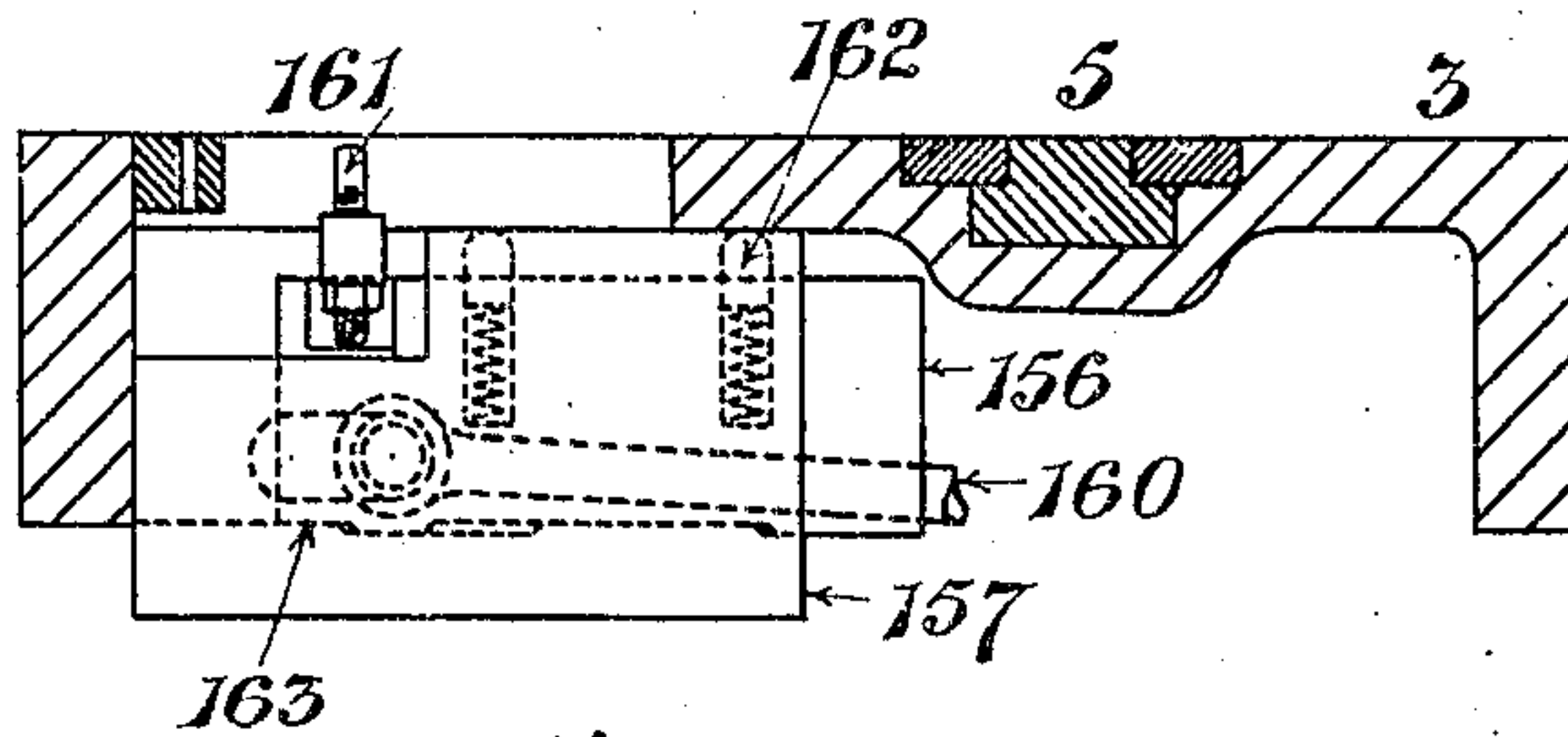


Fig 9

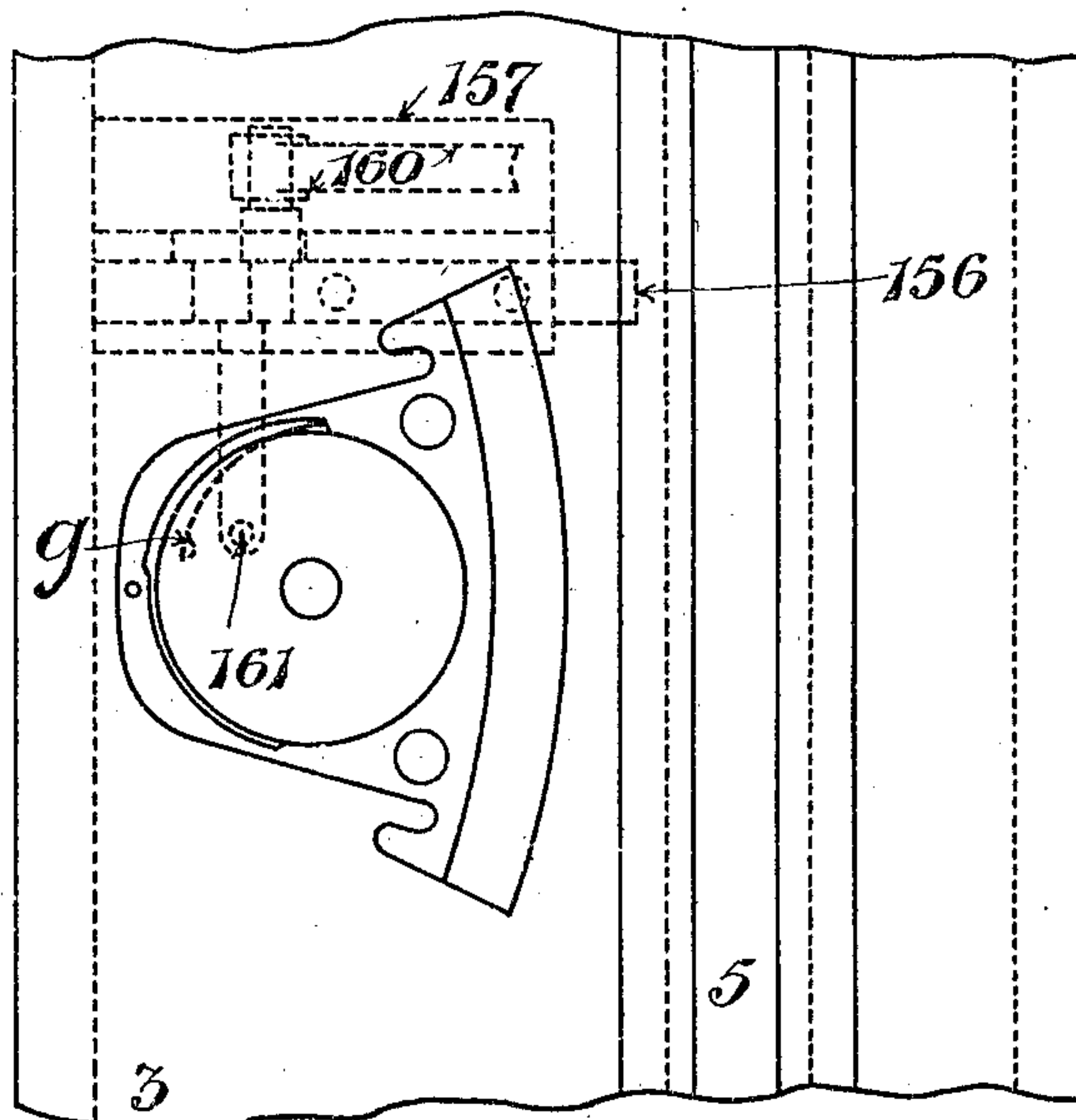


Fig 10

Witnesses:  
E. P. Patchliffe  
Geo. B. Pitts.

Inventors:  
Frederick W. Pare and  
John C. Richmond  
By J. S. Barker atty.

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6 SHEETS—SHEET 6.

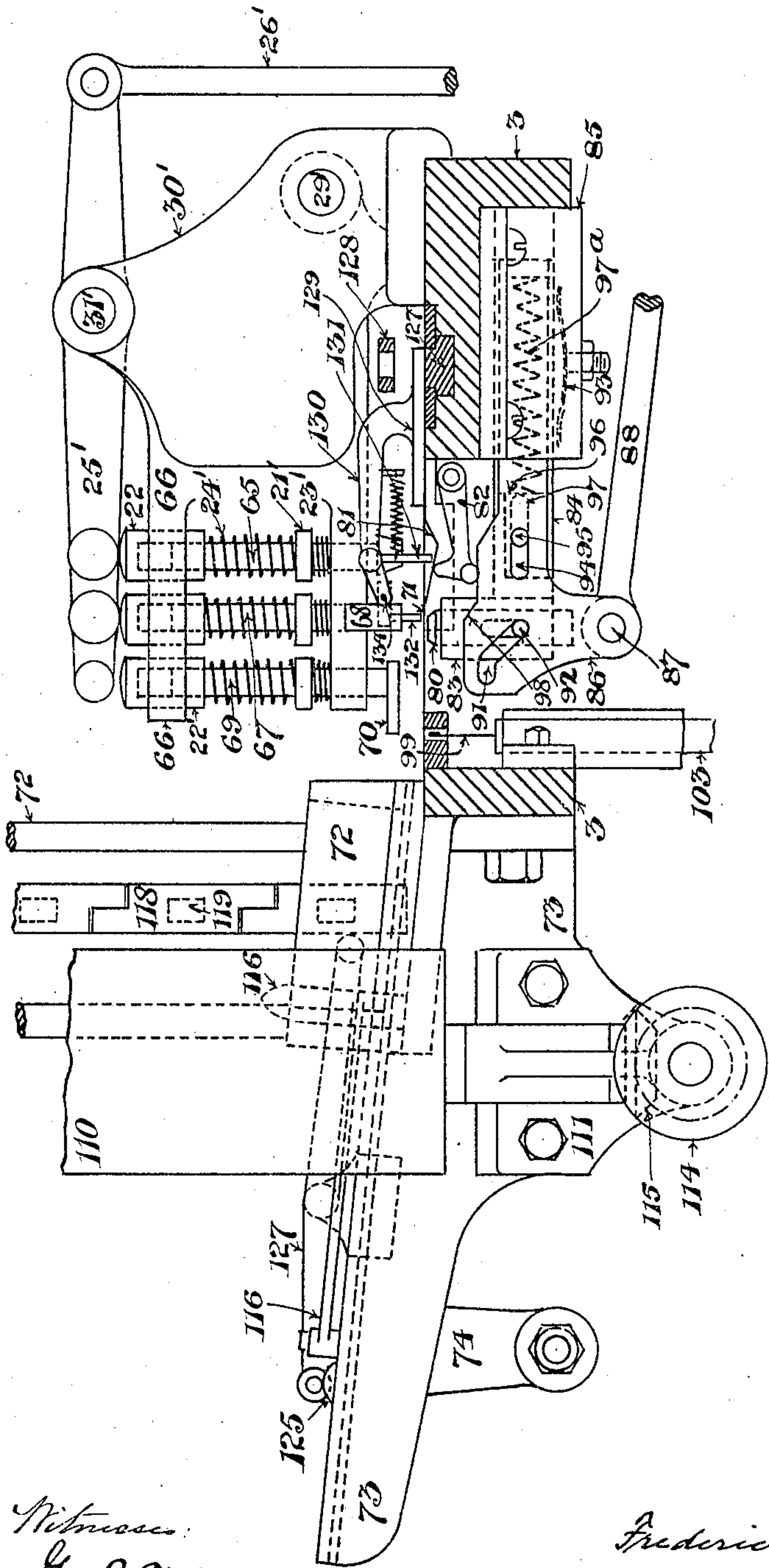


Fig 12

Witnesses:  
Geo. B. Pitts.  
H. N. Low

Inventors:  
Frederick William Pare  
John Charles Richmond  
By J. S. Backer atty.



# UNITED STATES PATENT OFFICE.

FREDERICK WILLIAM PARE, OF NOTTINGHAM, AND JOHN CHARLES RICHMOND, OF CHILWELL, ENGLAND.

MACHINE FOR THREADING AND UNTHREADING LACE-MACHINE CARRIAGES.

No. 843,487.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed April 14, 1905. Serial No. 255,550.

*To all whom it may concern:*

Be it known that we, FREDERICK WILLIAM PARE, a subject of the King of Great Britain, and a resident of the city of Nottingham, in the county of the said city, England, and JOHN CHARLES RICHMOND, a subject of the King of Great Britain, and a resident of Chilwell, in the county of Nottingham, have invented new and useful Improvements in Machines for Threading and Unthreading Lace-Machine Carriages, of which the following in a specification.

This invention relates to improvements in machines designed to so deal with bobbins and carriages of the kind used in lace-machines that the empty bobbin is removed from the carriage, a full bobbin inserted, the bobbin-thread drawn through the carriage-thread hole, the carriage-spring placed upon the bobbin, and the bobbin and carriage removed from the machine, the object of the present invention being the construction of a machine for automatically and successfully performing the above-named operations.

In the drawings which are attached hereto, Figure 1 is a plan of a lace-machine bobbin and carriage. Fig. 2 is a section on the line A A, Fig. 1. Fig. 3 is a front elevation of the machine. Fig. 4 is a part end elevation of the machine, showing in particular the bobbin and carriage-receiving table and its actuating mechanism. Fig. 5 is a plan of the bobbin and carriage receiving table. Fig. 6 is a section of the machine at the bobbin-removing mechanism, taken approximately on the line B B, Fig. 3. Fig. 7 is a plan of part of the machine, showing in particular the table for receiving the empty bobbins. Fig. 8 is a section of the machine at the bobbin-inserting mechanism, taken approximately on the line C C, Fig. 3. Fig. 9 is an elevation of the mechanism used for placing the carriage-spring on the bobbin. Fig. 10 is a plan of the same. Fig. 11 is a sectional plan of the machine at the inserting mechanism, and Fig. 12 is a sectional elevation of the machine-table at the inserting mechanism.

The lace-machine carriage *a* is punched from a sheet of metal and is provided with "nebs" *b*, by which the carriage is moved to and fro in the lace-machine, and with peg-holes *c*, by which the carriage is fixed in position during the various processes of its manu-

facture. The lower part *d* of the carriage is of reduced thickness to allow of it working in the lace-machine "combs," while the center part of the carriage is removed for the bobbin *e*. The lower part of the opening in the carriage has a central rib or verge *f*, and at the upper part of the opening there is the carriage-spring *g* and thread-hole *h*. The bobbin *e* is composed of two metal plates, which are shaped to form a recess for the thread, having a central hole *i*, and are riveted together to form the bobbin.

The carriages *a*, with the empty bobbins *e*, as taken from the lace-machine are placed in a carriage-box 1, which is shaped internally to correspond with the carriages. This box is fixed to the machine-table 3, and between the bottom of the box and the top of the table there is a space sufficiently large to allow of one carriage at a time being removed from the box by the carriage-plate 4, which is shaped at its front end to correspond with the outline of the carriage and is attached to a slide 5, which is reciprocated by a cam 6 through the quadrant cam-lever 7, gear-wheels 8 and 9, and gear-teeth on the under side of the slide 5. The cam-shaft 10 is carried by bearings on the standards 11 and on the tie-rail 12, and it is driven from the pulley 13 through gear-wheels 14 and 15 and a friction-clutch 16, which is coupled to the shaft by a cone 17, the movement of which is controlled by a handle 18.

When the slide 4 is in its most backward position at the left-hand end of the machine, the bobbins and carriages in the box fall onto the table 3, and when the slide 4 commences its forward stroke the lowest bobbin and carriage in the box, which is held up to the end of the plate 4 by a spring-finger 19, pivoted on the slide 5, is moved from the carriage-box to the bobbin-removing mechanism, and the slide 5 comes to rest. In this position the carriage is fixed and held by conically-ended fixing-pins 20, which are spaced to enter the carriage peg-holes *c*, are provided with a lower fixed collar 21, an upper loose collar 22, and springs 23 and 24, and are fitted to slide in guides on the bracket 20<sup>a</sup>. The collar 22 is not fixed to the pin 20, but operates as a bearing for the spring 24, which latter holds it in position underneath the projection of the bracket 20<sup>a</sup>, through which the pins slide. These pins are adapted to be en-



gaged by the outer end of a lever 25, which latter is moved on its pivot formed by a bolt 31, through a link 26 and cam-lever 27 from a cam 28 on the shaft 10, the fixing and holding pressure being obtained by or through the springs 24, while the springs 23 are used to raise the pins when the pressure of the springs 24 is removed. The bracket 20<sup>a</sup> has the same outline at the back as the bracket 30, to which it is pivoted at 29, and guarded by cheeks on such bracket. The bracket 30 is fixed upon the table 3, and the bracket 20<sup>a</sup> is held from accidental movement by a pin or bolt 31, which also forms the axle of the lever 25. The bracket 20<sup>a</sup> is held stationary relative to the bracket 30, but when the pin or bolt 31 is removed it may be swung back on its pivot 29, so as to raise the fixing mechanism clear of the table, if required.

After the carriage has been fixed in position that half of the bobbin which is free of the carriage-verge *f* is forced below the plane of the carriage by a depressor 32, which is carried by an axle in the bracket 33 and is actuated by a cam 34 through a lever 35, link 36, and lever 37. The carriage-spring *g* is then forced off the bobbin by a pin 38, which is inserted between the edge of the bobbin and the spring, and since the front edge of the bobbin is depressed the spring flies up onto the top of the bobbin, when the pin 38 is removed. The pin 38 is adjustably mounted in the end of a lever 39, carried by an axle which has its bearing in the bracket 33 and is actuated by a cam 40 through a lever 41, link 42, and lever 43. The bobbin-removing pin 44 then comes into action. It enters the hole *i* in the bobbin and draws the bobbin off the carriage-verge *f*, and when free of the carriage the bobbin falls down the chute 45 into one of the boxes 46 on the bobbin-receiving table 47. The bobbin-removing pin is adjustably mounted in the end of an axle 48, carried by the bracket 33, and it is actuated by the cam 49 through the lever 50, link 51, and lever 52. The bracket 33 also carries an axle for a lever 53, to which the stop-motion feelers 54 and 55 are attached, either or both acting to stop the machine if the bobbin is not removed from the carriage, while the feeler 55 acts to stop the machine if the carriage has by error been placed upside down in the carriage-box, the feeler then coming into contact with the carriage-spring after the bobbin has been removed. The lever 53 is connected by a link 54' to a lever 55' on a shaft 56, which can oscillate and slide in its bearings and is provided with a lever 57, which has two pins 58 and 59. The pin 58 rides upon the edge of a cam 60, (see Fig. 3,) which is provided with a recess and so timed that after the carriage has been fixed in position the feelers fall upon the bobbin and bring the pin 59 into the path of an edge cam 61. If the bobbin is re-

moved, the feelers fall through the opening in the carriage and the pin 59 falls below the cam 61; but if the bobbin has not been removed or the carriage has been placed in the carriage-box upside down the pin 59 is held in the path of the cam 61 and the shaft 56 moved endwise. This movement of the shaft through the collar 62 lowers the catch-lever 63 clear of the catch 64 on the lever 18, which is then actuated by the spring 65 to withdraw the cone 17 and disconnect the shaft 10 from the clutch 16 and the driving pulley 13.

After the bobbin has been removed from the carriage the bobbin-removing mechanisms return to their normal position and the plate 4 is actuated to push the empty carriage to the bobbin-inserting mechanism, in which position it is fixed and held by conically-ended fixing-pins 20', mounted to slide in fixed and loose collars 21' and 22' of a bracket 66 and provided with springs 23' and 24' and adapted to be actuated by the outer end of a lever 25', pivoted at 31', through the link 26'. The bracket 66 is pivotally connected to the bracket 30' at 29', but fixed thereto by the pivot-pin 31'. The bracket 66, in which the fixing-pins slide, also carries pins 67, to which the upper parts 68 of the inserting-frame are attached, and a pin 69, carrying the presser-foot 70. The pins 67 and 69 are also fitted with upper and lower collars and springs, and the lever 25' is made long enough to actuate all the pins carried by the bracket 66. After the carriage has been fixed at the inserting position the plate 4 makes its return traverse for another bobbin and carriage, which is moved from the carriage-box to the removing mechanism and the bobbin removed from the carriage, while the inserting operations are being performed on the carriage at the inserting position. The second forward movement of the plate 4 moves the empty carriage to the inserting position, and the carriage at the inserting position is moved on to the delivery-table by mechanism actuated by the slide 5 and hereinafter described.

After the carriage has been fixed at the inserting position the upper parts 68 of the bobbin-inserting frame are pressed upon the top of the carriage and over the ends of the carriage-verge. Under the carriage and attached to the table there are the under parts 71 of the bobbin-inserting frame, and between these two parts of the frame the bobbin for insertion is delivered and by such parts is held centrally with regard to the thickness of the carriage, and therefore with the space between the bobbin-plates opposite the ends of the carriage-verge.

The full bobbins for insertion are placed in a box or frame 72, which is carried by a bracket 73 from the table 3. The bracket is fitted with a sliding block 74, which is



actuated by a link 75 and lever 76 from a cam 77. The block 74 carries a plate 78, the front end of which has a verge 79, similar to a carriage-verge, and the forward movement of the plate 78 pushes a bobbin out of the box 72 and delivers it into the inserting-frame. The inserting-pin 80 then rises through the bobbin-hole *i* and is actuated to force the bobbin onto the carriage-verge, the forward end of the bobbin sliding up the incline 81 and being lifted into the plane of the carriage by the lever 82. The inserting-pin 80 is fitted to slide vertically in the boss 83 of a slide 84 and to move horizontally with such slide which is guided in a bracket 85, attached to the under side of the table 3. For actuating the pin 80 and slide 84 side plates 86 are provided, and these are guided by the bracket 85, coupled together by the axle 87 and actuated by the link 88 and the lever 89 from the cam 90. The first movement of the plates 86 through the cam-slot 91 and a pin 92, connected to the inserting-pin, raises the inserting-pin through the bobbin, the slide 84 being held by a friction-spring 93. The end of the straight slot 94, also on the plates 86, then comes into contact with a pin 95, which is attached to a block 96, fitted to slide inside the slide 84 and held with the pin 95 at the end of a slot 97 in the slide 84 by a spring 97<sup>a</sup>, which is strong enough to resist the pressure required for the insertion of a bobbin, but would be compressed if undue resistance is offered to the insertion of the bobbin, and thus prevent damage being done to the bobbin. The plates 86 are also provided with inclines or cam-surfaces 98, which act upon the lever 82 to raise the forward end of the bobbin into the plane of the carriage and facilitate the complete insertion of the bobbin upon the verge of the carriage.

After the bobbin has been inserted the lever 25' is actuated to force the presser-foot 70 into contact with the top of the bobbin and carriage, in which position it is held while the bobbin is threaded and the carriage-spring placed upon the bobbin. The threading-hook 99 is then raised through the carriage thread-hole *h* by the cam 100, through the lever 101, link 102, and slide 103, the bobbin-thread then being in the position of the dotted line 104. (See Fig. 11.) The thread layer 105 is then actuated by the cam 106 through the lever 107 to push the bobbin-thread into the line 108 and into contact with the hook 99, which afterward descends and draws the thread through the carriage-hole, the bottom of the bobbin-box being recessed to the line 109 to allow of this movement of the thread.

When the bobbins are placed in the bobbin-box, the ends of the bobbin-thread must be left long enough to allow of the thread ends being dealt with when the bobbins and carriages are placed in the lace-machine, and to prevent such thread ends becoming entangled

during the insertion of the bobbins they are placed upon a roller 110, which is carried by a bracket 111 and rotated from a pulley 112 on the shaft 10, through a belt 113, pulley 114, and gear-wheels 115. The surface of the roller 110 is provided with strips of card-clothing 115<sup>a</sup>, bristles, or the like of such a nature and moved at such a surface speed that the thread ends are kept extended and separated without being pulled off the bobbins, and at the same time the threads are free to descend upon the surface of the roller as the bobbins are removed one by one from the bottom of the box. The bobbin-box is also fitted with a thread-clipping lever 116, by which the threads from bobbins near the bottom of the box are clipped while the lower bobbin is being moved from the box, and such threads are held by the clip from being pulled forward by the thread of the moving bobbin. The lever 116 is pivoted on the bracket 73 and actuated to open the clip and allow the threads to fall by a piece 117 on the slide 78, the parts being timed to release the threads just before the slide reaches the end of the back stroke and to clip the threads again before the slide commences to move the bobbin out of the box. On the other side of the bobbin-box is a bobbin clamping or holding device consisting of a number of plates 118, carried by shanks 119, which are fitted to slide in a fixed bar 120 and held in their most forward position by springs 121, as shown in Fig. 11. The ends of the shanks 119 are provided with pins 122 and are drawn back by inclines 123 on a slide 124, which is actuated by a cam 125 on the slide 78 through a lever 126, the parts being designed to release the bobbins as the slide 78 completes its back stroke and during the time the bobbins descend in the box 72.

After the bobbin has been inserted the spring *g*, Figs. 9 and 10, is on the under side of the bobbin, and to move it from this position onto the edge of the bobbin the machine is fitted with a slide 156, which is guided in a bracket 157 and actuated from the cam 158, through the lever 159 and link 160. The slide carries an adjustable pin 161 and is held in contact with the bottom of the bracket by spring-pins 162, and on the bottom there are pieces 163, so arranged in conjunction with the bottom of the slide that a horizontal movement of the slide causes it to move vertically also and bring the pin 161 into close contact with the under side of the bobbin and behind the spring. A further horizontal movement of the slide causes the pin 161 to push the spring forward until it is opposite the space between the edge of the bobbin and the edge of the opening in the carriage, and when in this position the spring flies upward onto the edge of the bobbin, the presser-foot 70 preventing the spring flying onto the top of the bobbin.



The bobbin and carriage delivery mechanism is carried by a block 127, which is fitted to slide in the same groove as the slide 5, and it is actuated from the slide 5 through a slotted link 128, which actuates the mechanism to move the bobbin and carriage from the machine at the same time as the empty carriage is moved from the removing mechanism to the inserting mechanism and to move the delivery mechanism into engagement with the bobbin and carriage as the slide 5 completes its return stroke. Attached to the block 127 is a plate 129, which is shaped to fit against the lower edge of the carriage and carries an arm 130, to which a spring clipping-pin 131 is pivoted, which pin rides round the carriage-net as the delivery mechanism is moved to its clipping position. The arm 130 also carries a bobbin-removing pin 132, which is designed to remove the bobbin from the machine if from any cause it has not been inserted. The pin 132 is attached to a cam-shaped plate 133, which is carried by a spring-arm 134 or its equivalent, which allows of the pin mounting the bobbin and carriage and passing behind the piece 68, which is in position when the pin 132 moves to engage with the bobbin.

The bobbins and carriages are moved by the delivery mechanism onto the chute 135, by which they are guided into boxes 136, on a table 137, and during such movement the thread ends are drawn between a fixed knife-blade 138 and a blade 139, which is pivoted at 140 and held open by a spring 141 and actuated to sever any thread ends which prevents the bobbin and carriage falling down the chute, by a cam 142 on the thread-layer lever 107.

The bobbin-receiving table 47 and the bobbin and carriage table 137 are provided with a convenient number of boxes 46 and 136, respectively, and each of such boxes is of a depth sufficient to receive a convenient number of bobbins or bobbins and carriages, and as each box is filled the tables make a partial revolution to bring another box into the receiving position. The mechanisms used for actuating each table and for locking the tables in their positions is of the same kind for both tables, but is modified to meet the particular requirement of each table. To the under side of the tables a locking-plate 143 and a ratchet-wheel 144 are attached, having as many notches and teeth, respectively, as there are boxes on the table, and these parts are fitted to revolve together with an axle having its bearing in a bracket 145. Fitted to revolve on the table-axle is a bevel-wheel 146, which carries a ratchet-pawl 147 and is in gear with a toothed quadrant 148. This latter is suitably pivoted and is actuated by a cam 149 on a shaft 150, which is driven by a worm-wheel 151 and a broken worm 152 on the cam-shaft, the said worm being timed

to actuate the table between the deliveries to it. The cam 149 also carries a nose-piece 153, which acts upon the catch-lever 154 to move it clear of the locking-plate just before the table commences to move and allow it to fall into its locking position in time to stop the table at the desired position, a spring 155 being connected to both levers 148 and 154 for moving both in opposition to the movements of the cams.

The bobbin-box 72 and the thread-roller 110 may be parallel to or inclined to each other; but the roller is preferably inclined toward the lower part of the box to prevent the bobbin-thread mounting the top of the bobbin.

What we claim, and desire to secure by Letters Patent in the United States, is—

1. The combination of a box for holding the carriages, means for removing the carriages from the box, means for holding the carriages stationary while the empty bobbin is being removed, means for removing the bobbins, means for stopping the machine when a carriage is wrongly inserted in the carriage-box, or the bobbin is not removed from the carriage, means for inserting a full bobbin in the carriage, and a receiving-table for the carriages, substantially as set forth.

2. The combination of a box for holding the bobbin-carriages, a sliding plate for moving the carriages from the box, means for holding the carriage, a depressor and pin for removing the bobbin from the carriage, and stopping means comprising feelers for stopping the machine when a carriage is wrongly placed in the carriage-box, or the bobbin is not removed from the carriage, substantially as set forth.

3. The combination of a box for holding the bobbin-carriages, or bobbins and carriages, a reciprocating slide-plate for moving the carriages one at a time from the box, pins for holding the carriages stationary after they are operated on by the slide-plate, a depressor and pin for removing the empty bobbins from the carriage, and means for automatically stopping the machine when a carriage is wrongly inserted in the carriage-box or the bobbin is not removed from the carriage, substantially as set forth.

4. In a bobbin removing and inserting machine, the combination with the driving-shaft, the source of power and a clutch mechanism for connecting the shaft with the source of power, of means for removing the empty bobbin from the carriage, a reciprocating slide-plate for feeding the carriages to the bobbin-removing means, a cam on the driving-shaft, a pin and feelers arranged to cause the said pin to engage said cam and automatically release the clutch mechanism to stop the machine when a bobbin is not removed, or the carriage is wrongly inserted in the machine, substantially as set forth.



5. In a machine for the purpose described the combination with the frame, of a box mounted thereon for holding the bobbin-carriages, means for intermittently feeding a carriage to the bobbin-removing mechanism, a bracket pivoted to the frame, conically-shaped pins arranged to slide in said bracket for holding the bobbin-carriages, a loose collar on said pins, springs for holding the pins in one position, a cam-operated lever for operating the pins against the action of the said springs, and cam-operated mechanism for removing the bobbins from the carriages while the latter are held by the said pins, substantially as set forth.

6. In a machine for the purpose described, the combination with the frame, of a box for holding the bobbin-carriages, means for feeding the carriages through the machine, means for removing the empty bobbins from the carriages, a bracket pivoted to the said frame, pins arranged to slide therein for holding the carriages while a full bobbin is being inserted, fixed and loose collars on the pins, springs for holding the pins in position, a presser for holding the bobbin in position while the carriage-spring is placed on its edge, and cam-operated means for operating the pins and presser, substantially as set forth.

7. In a machine for the purpose described, the combination with the frame, of a box for holding the carriages with the empty bobbins, and a separate box for holding the full bobbins, of a series of pins for holding the carriages stationary, means for feeding the carriages to the holding-pins, a reciprocating plate for feeding a bobbin to the carriage, means for inserting the bobbin in the carriage, a presser for holding the bobbins and carriage while the carriage-spring is placed in position, means for threading the carriage, and a roller for preventing the thread ends from getting entangled, substantially as set forth.

8. In a machine for the purpose described, the combination with the frame, of a box for holding the carriages and empty bobbins, and a separate box for holding the full bobbins, of a series of pins for holding the carriages stationary, means for feeding the carriages to the holding-pins, a reciprocating plate for feeding a bobbin to the carriage, means for placing the carriage-spring in position, a presser for holding the bobbin and carriage while the carriage-spring is placed in position, means for threading the carriage, a roller for preventing the thread ends from getting entangled, and means for continuously rotating the roller, substantially as set forth.

9. In a machine for the purpose described, the combination with the frame, of a box for holding the carriages and empty bobbins, and a separate box for holding the full bobbins, of a series of pins for holding the car-

riages stationary, means for feeding the carriages to the holding-pins, a reciprocating plate for feeding a bobbin to the carriage, means for inserting the bobbin therein and means for placing the carriage-spring in position a presser for holding the bobbin and carriage while the carriage-spring is placed in position, means for threading the carriage, a roller provided with card-clothing, bristles or the like, and means for rotating the roller, substantially as set forth.

10. In a machine for the purpose described the combination with the feed-table, of a slide-plate for intermittently moving the bobbin-carriages along the feed-table, means for inserting the full bobbins in the carriages, means for holding the carriages stationary while the inserting operation takes place, and a spring-arm connected with the slide-plate for removing a bobbin when it has not been placed properly in the carriage substantially as set forth.

11. In a machine for the purpose described, the combination of a box for the bobbins, a reciprocating slide for delivering the bobbins to the carriage, a roller for engaging with the thread ends to prevent them from entangling with each other, a lever provided with a blade for clipping the thread, and a receiving-table for the carriages, substantially as set forth.

12. In a machine for the purpose described the combination of the carriage fixing and holding pins, the upper and lower parts of the inserting-frame, a bobbin-inserting pin, a slide carrying the pin, side plates for raising the pin and moving the slide horizontally, a brake-spring on the slide, a block and spring inside the slide pins carried by the block, the slide and side plates being provided with slots in which the pins carried by the block move, and cam-operating mechanism substantially as herein set forth.

13. In a machine for the purpose described, the combination with the driven shaft and the receiving-table provided with ratchet-teeth, of a worm-wheel and broken worm arranged to be driven by the shaft, an oscillating lever, a cam arranged to be rotated by the worm-wheel for operating the lever, a gear arranged to be moved by the oscillating lever, a pawl on the gear arranged to engage with the ratchet-teeth on the receiving-table, a lever for locking the receiving-table in position, and a nose secured to the cam arranged to engage with the locking-lever to release the receiving-table, substantially as set forth.

14. In a machine for the purpose described, the combination of a box for the bobbins, means for holding the bobbins consisting of a series of plates, shanks to which the plates are secured, and a guide-bar for the shanks, springs for holding the plates against the bobbins, a reciprocating slide for moving one of



the bobbins out of the box for insertion in a carriage, and connections between the reciprocating slide and the plates for releasing the bobbin, substantially as set forth.

5 15. In a machine for the purpose described, the combination of a box for the bobbins, means for feeding the carriages, means for feeding the bobbins to the carriages, a pair of knife-blades, one of which is pivoted for cutting the thread ends, and a cam for operating  
10 the pivoted knife-blade, substantially as set forth.

16. The combination with the box for the carriages, and means for moving the carriages therefrom, pins for holding a carriage stationary while the inserting operation takes place, a slide for delivering a bobbin to the carriage for insertion therein, a pin and lever for inserting the bobbin in the carriage,

a presser-foot for pressing the bobbin on the verge of the carriage, a pin for placing the carriage-spring on the bobbin, an arm for laying the thread in position, a threading-hook arranged to engage the thread, and a cam for operating the hook, a roller for keeping  
25 the threads from getting tangled, knives for cutting the thread, a receiving-table, and means for delivering the carriages to the receiving-table, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FREDERICK WILLIAM PARE.  
JOHN CHARLES RICHMOND.

Witnesses:

JOHN ARCHER,  
WILLIAM H. POTTER.