

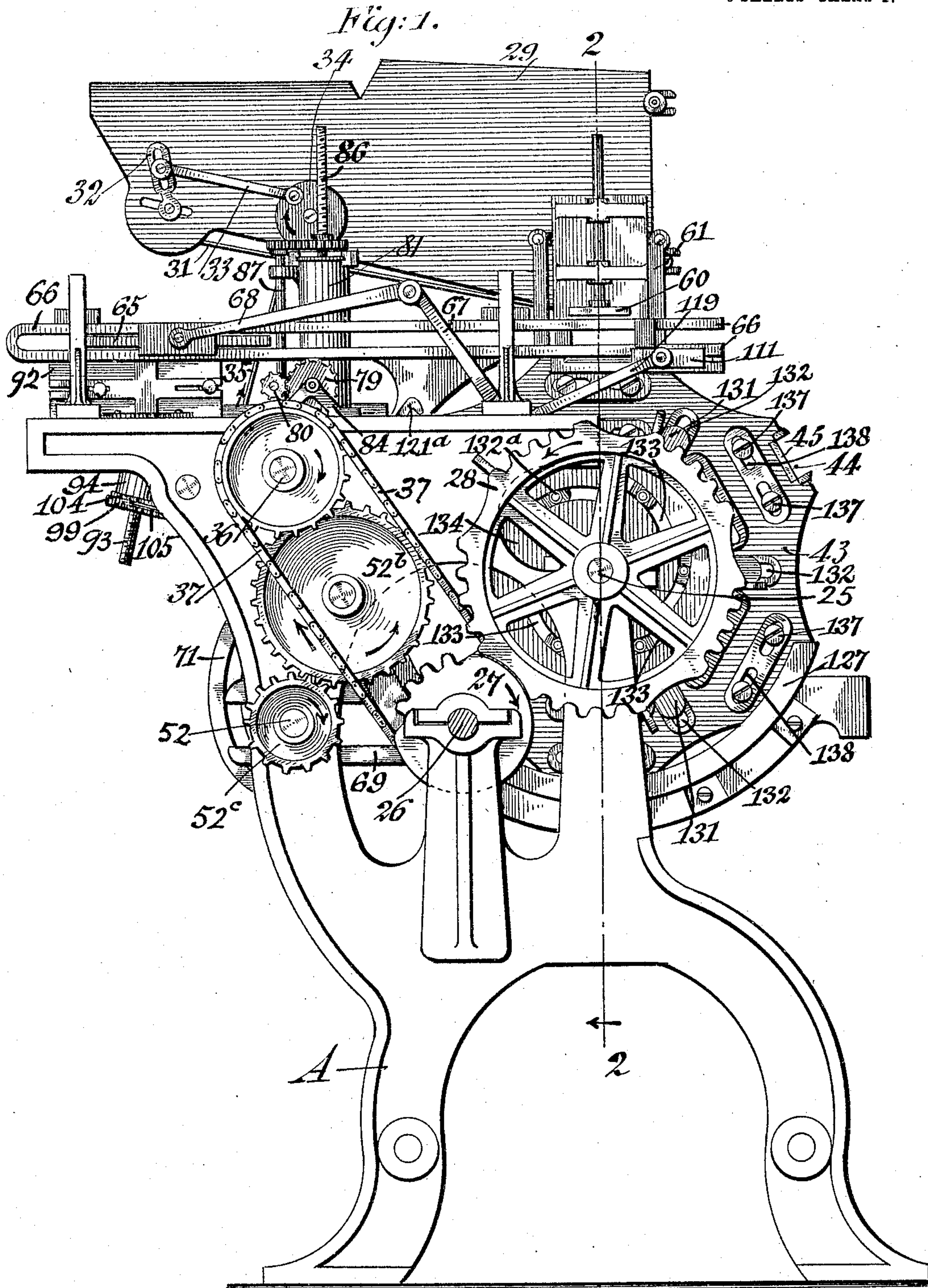
No. 788,494.

PATENTED APR. 25, 1905.

M. PLACER.
CIGARETTE PACKING MACHINE.

APPLICATION FILED DEC. 26, 1903.

9 SHEETS—SHEET 1.



Witnesses
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Henry J. Subrier

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By his Attorneys James Viles

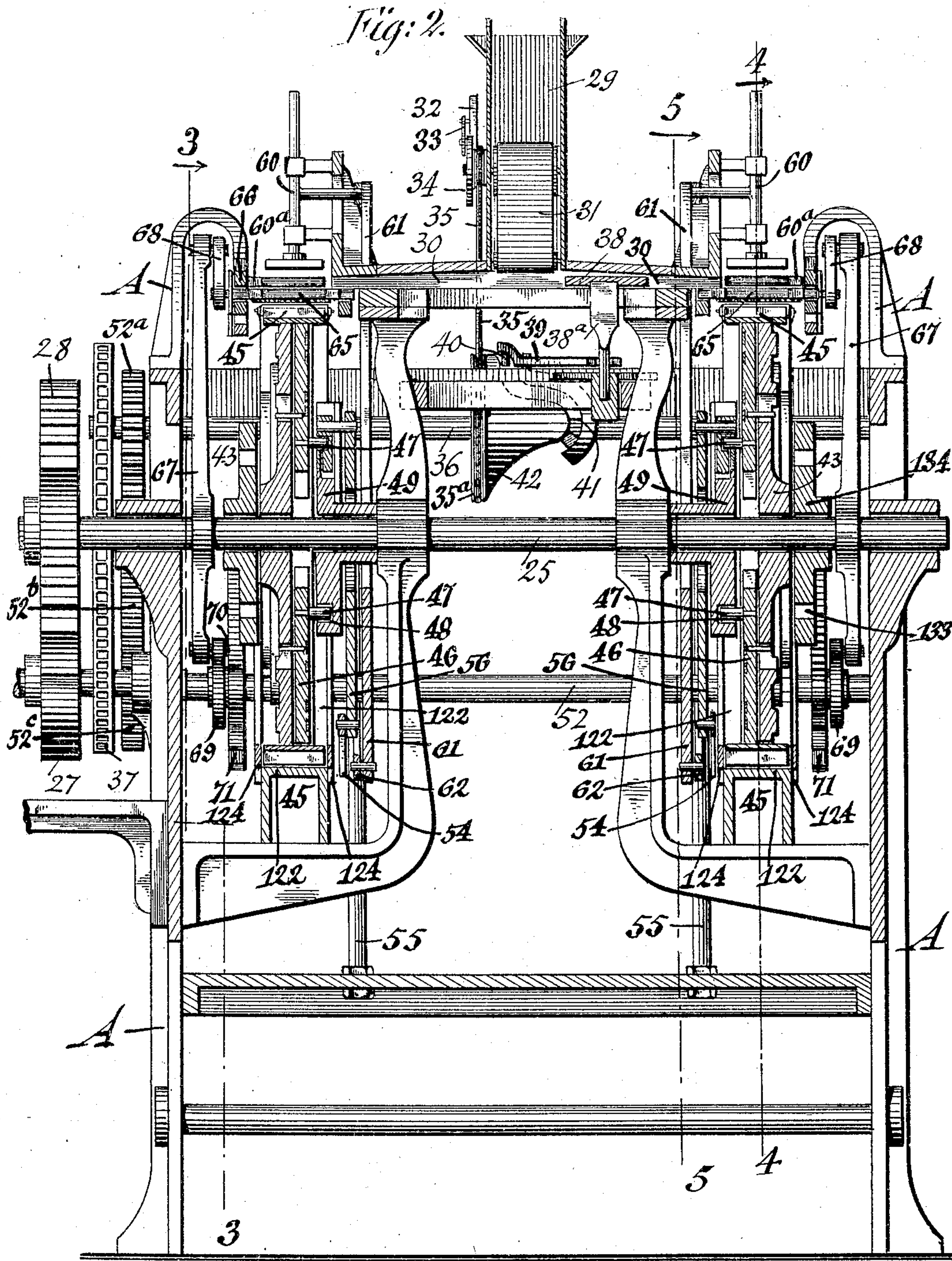
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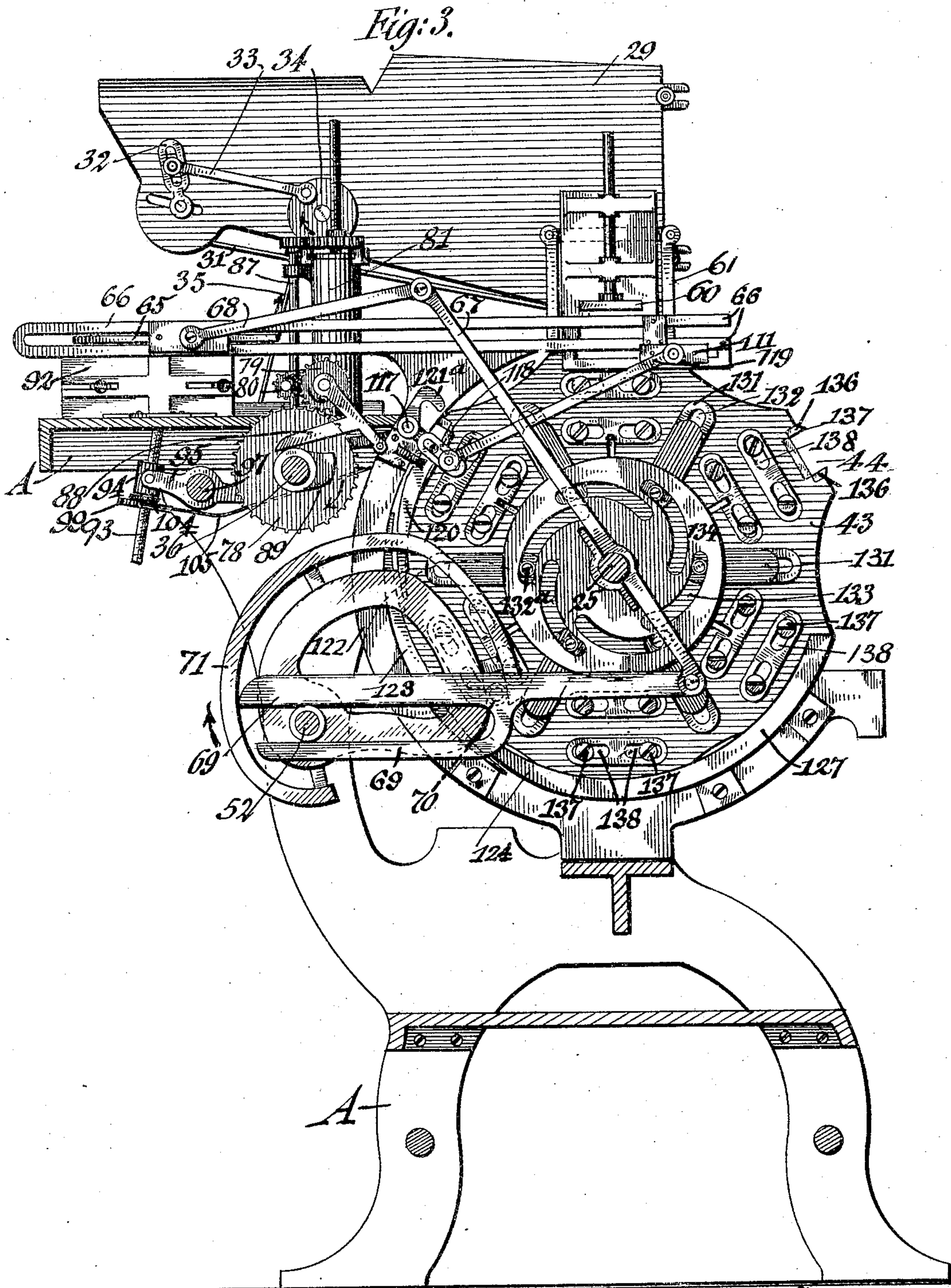
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9 SHEETS—SHEET 3.



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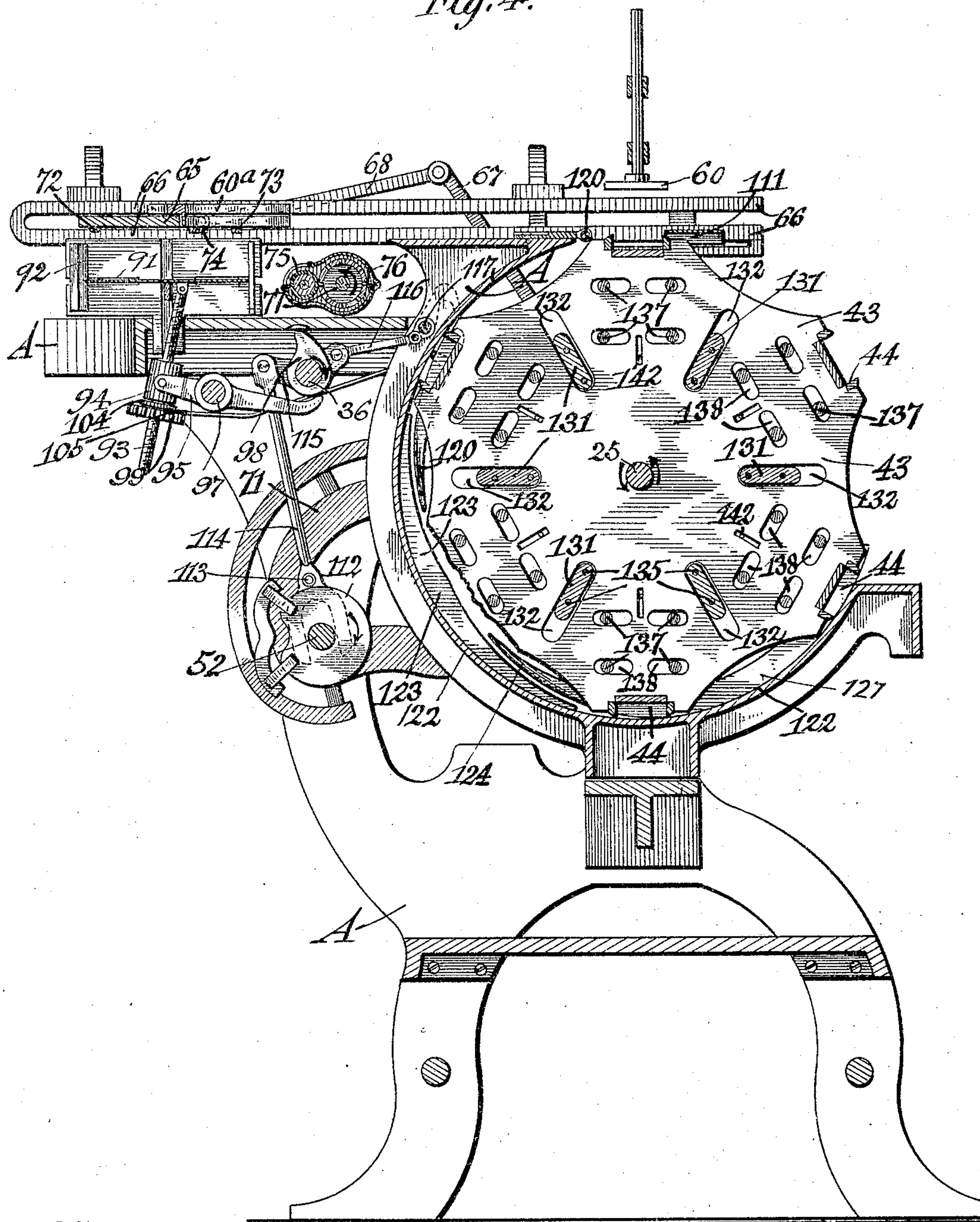
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9 SHEETS—SHEET 4.

Fig. 4.



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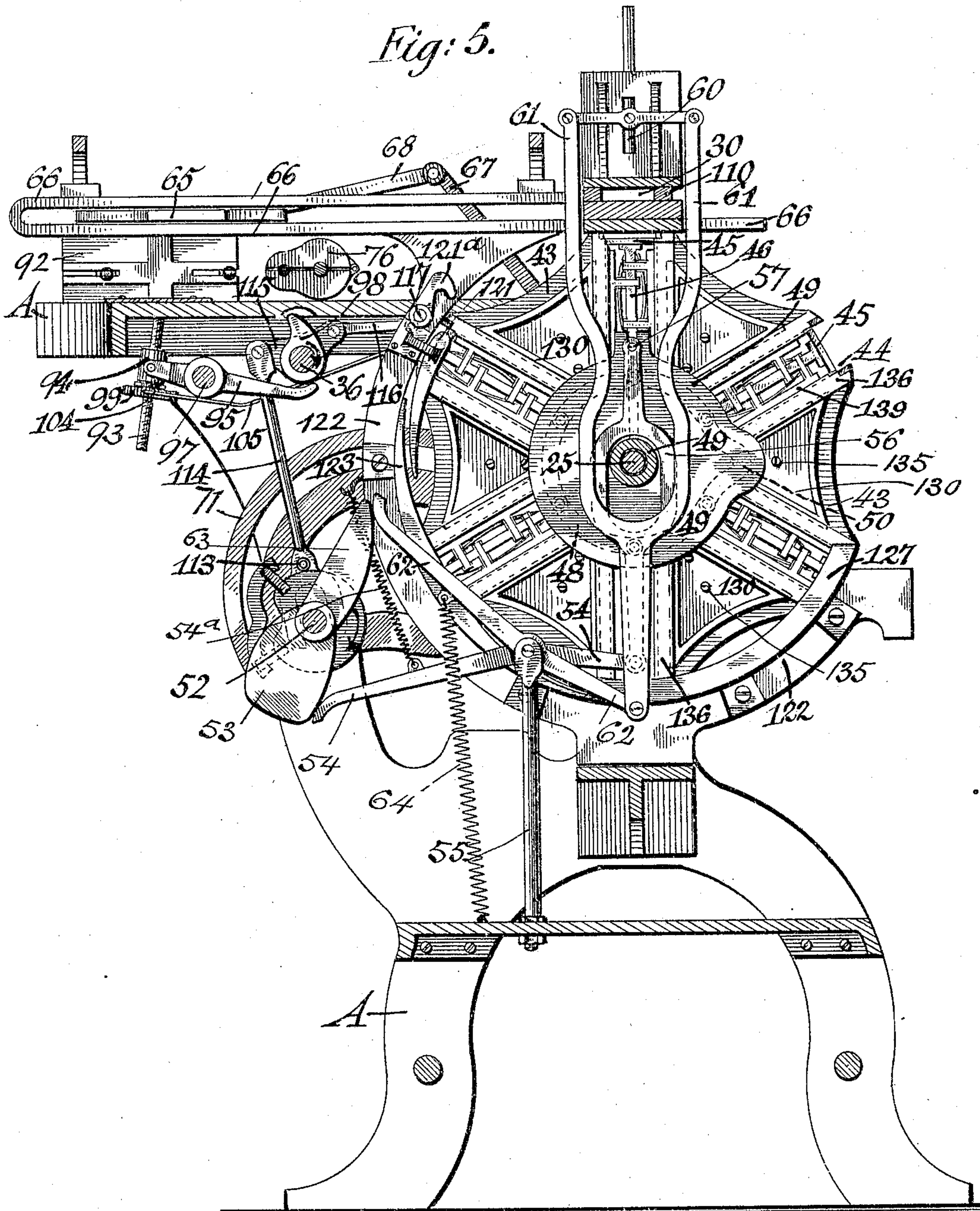
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9 SHEETS—SHEET 5.

Fig: 5.



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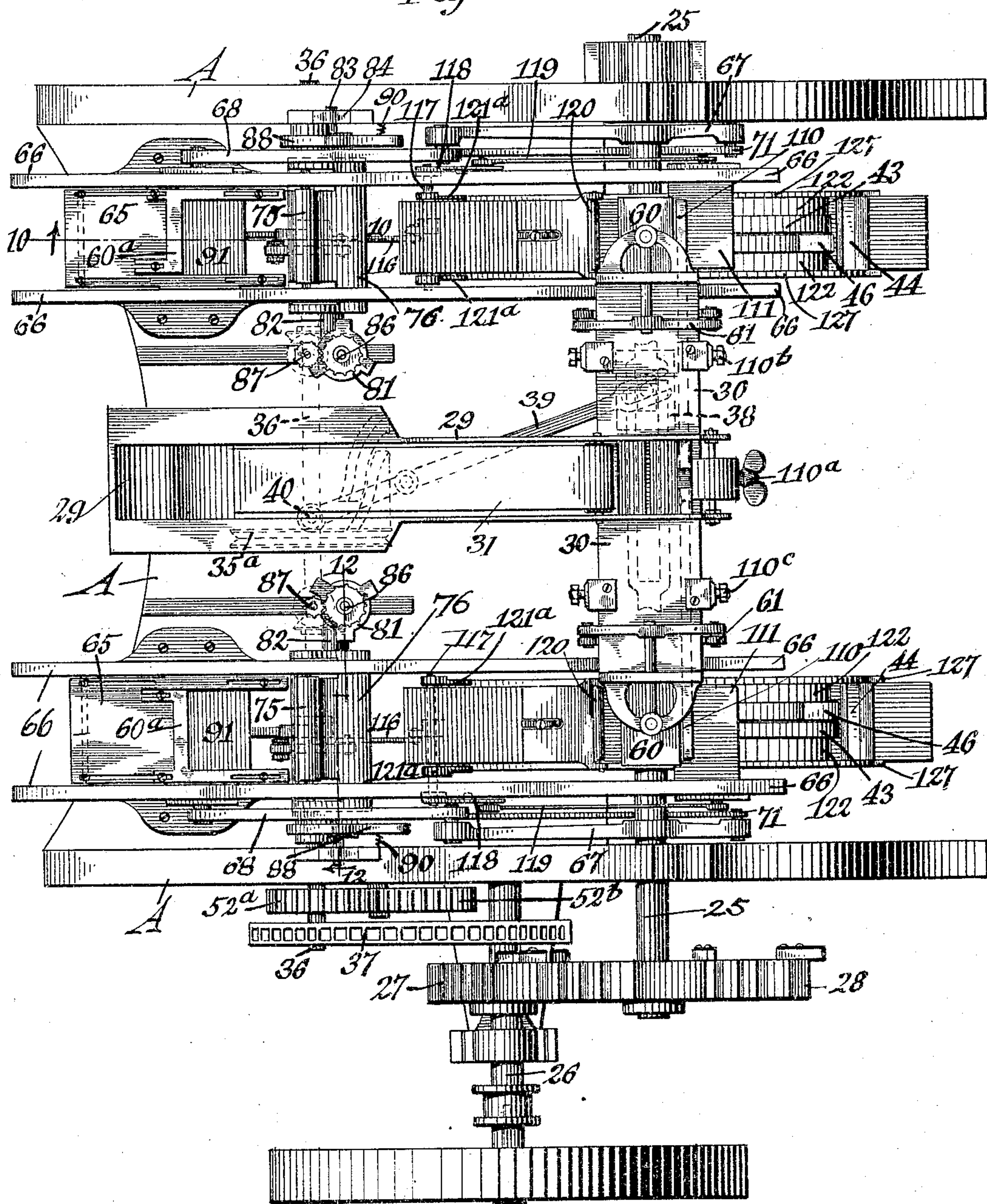
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Fig. 6.



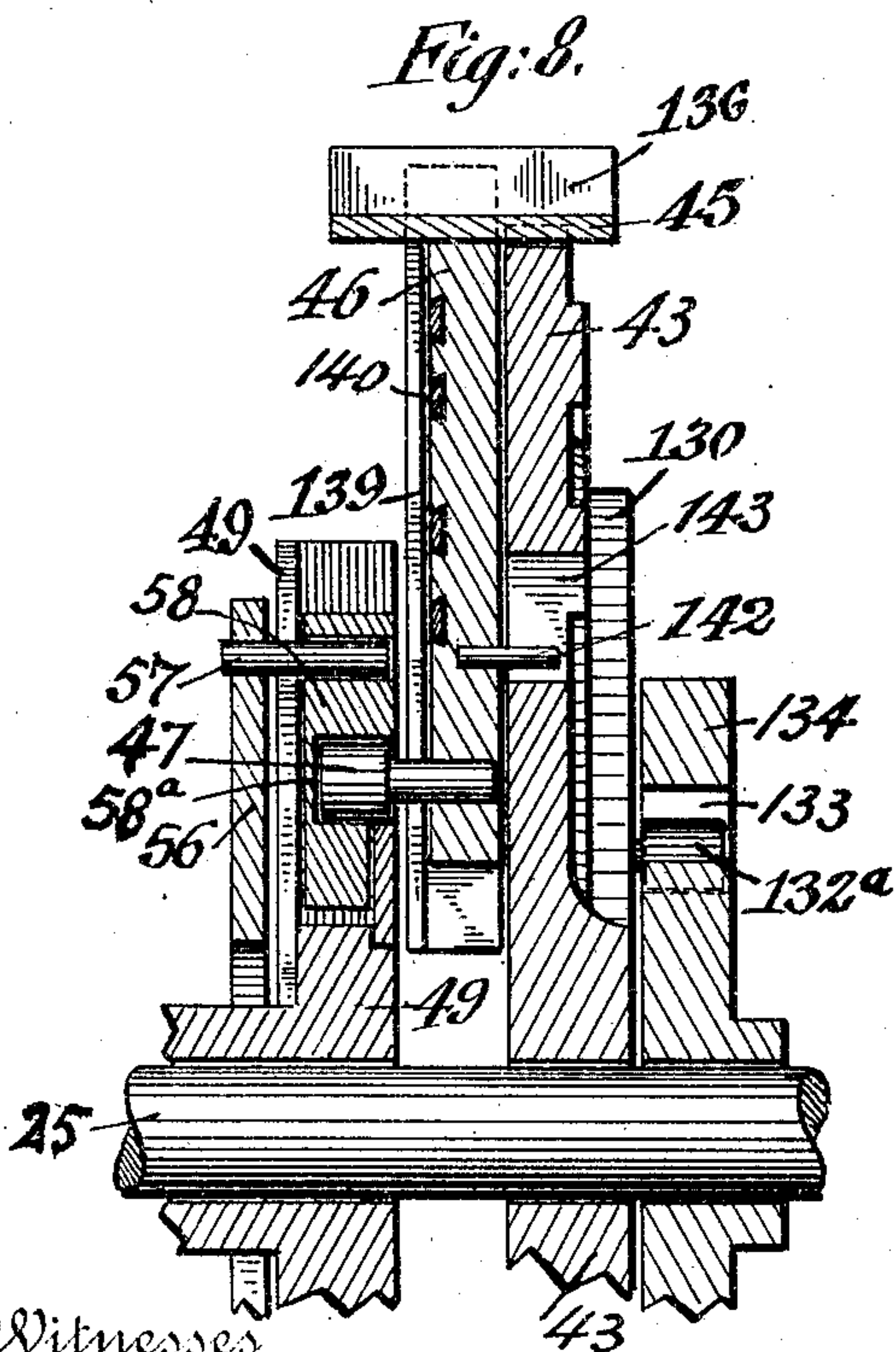
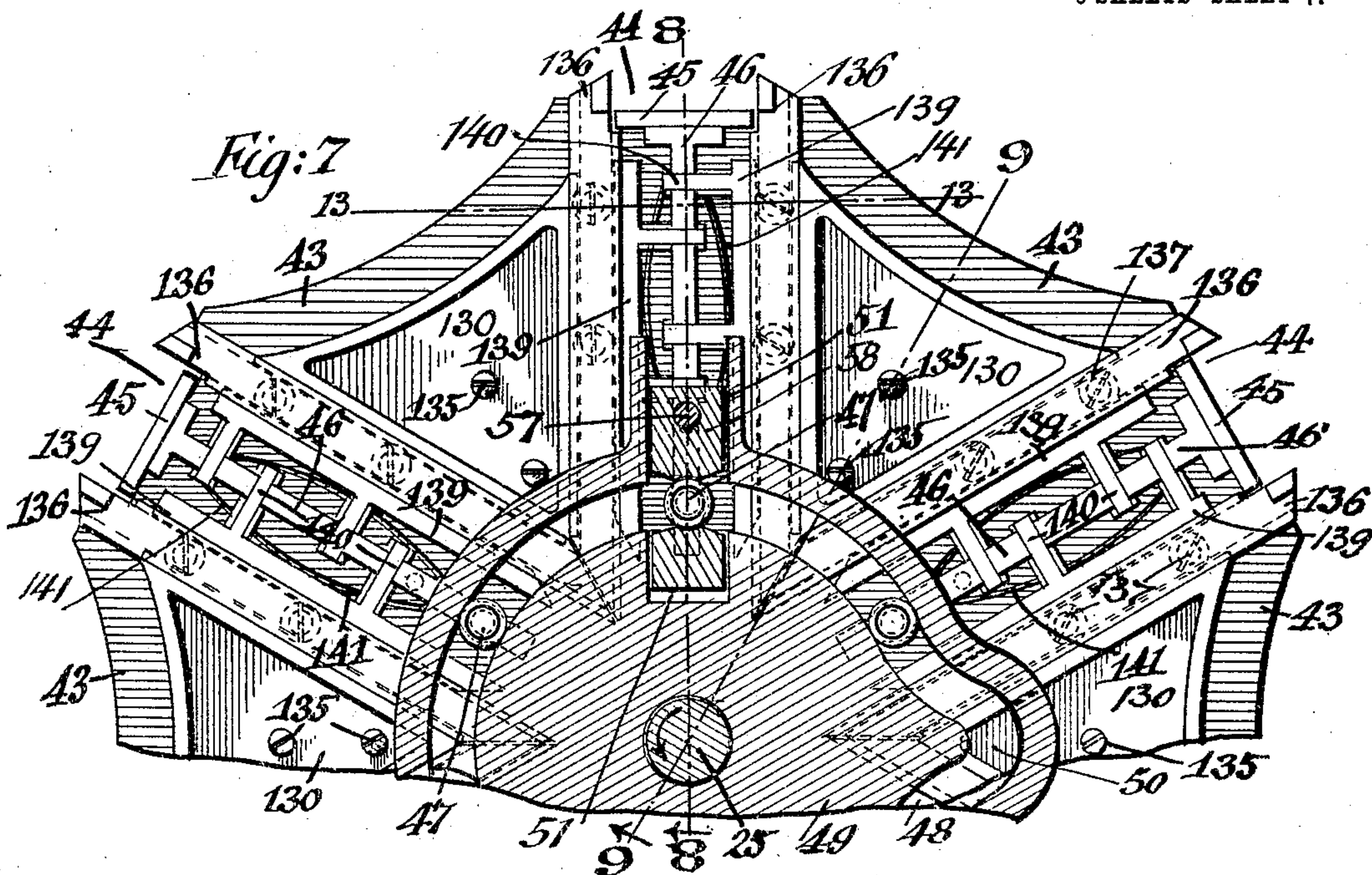
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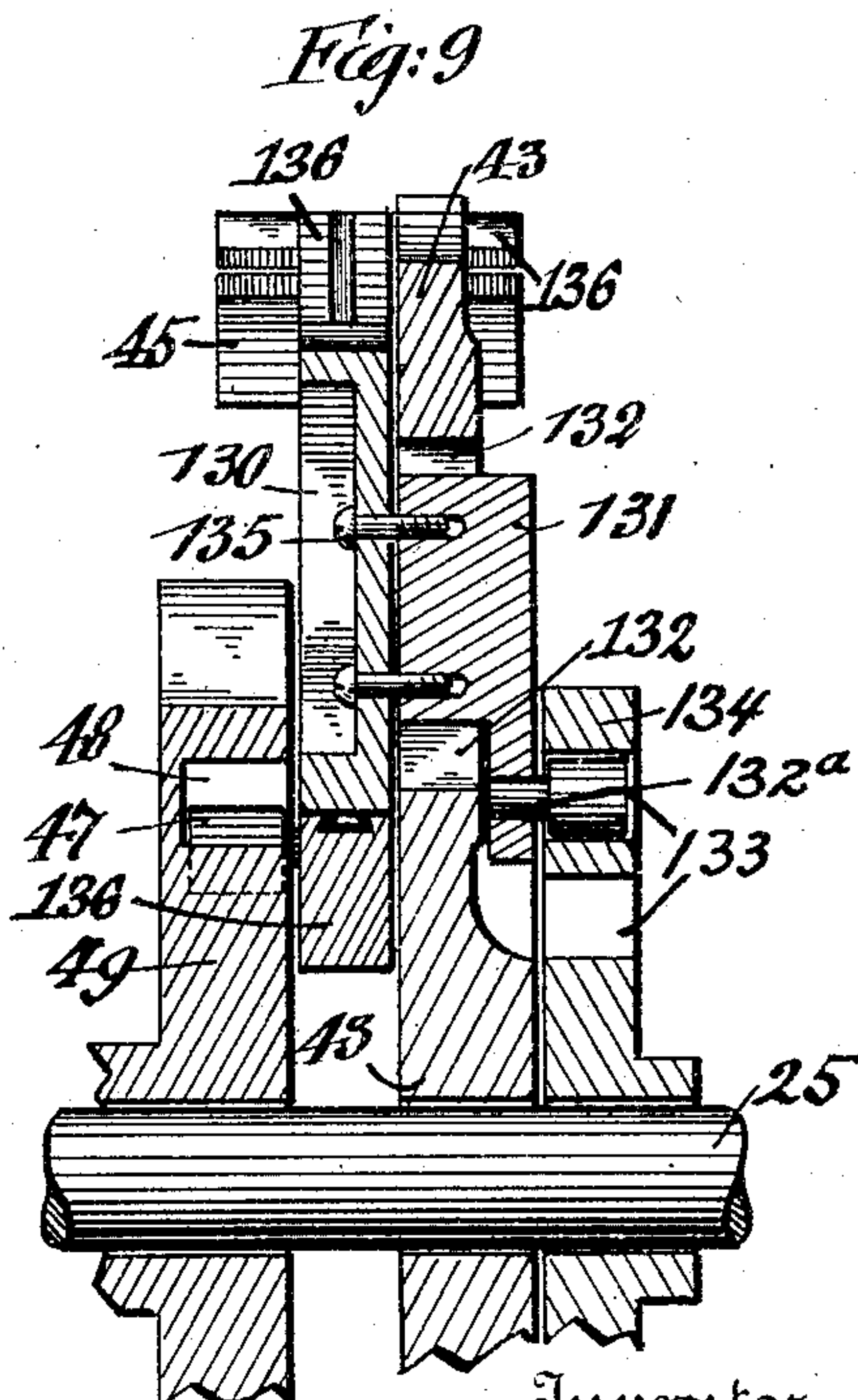
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9 SHEETS—SHEET 7.



Witnesses
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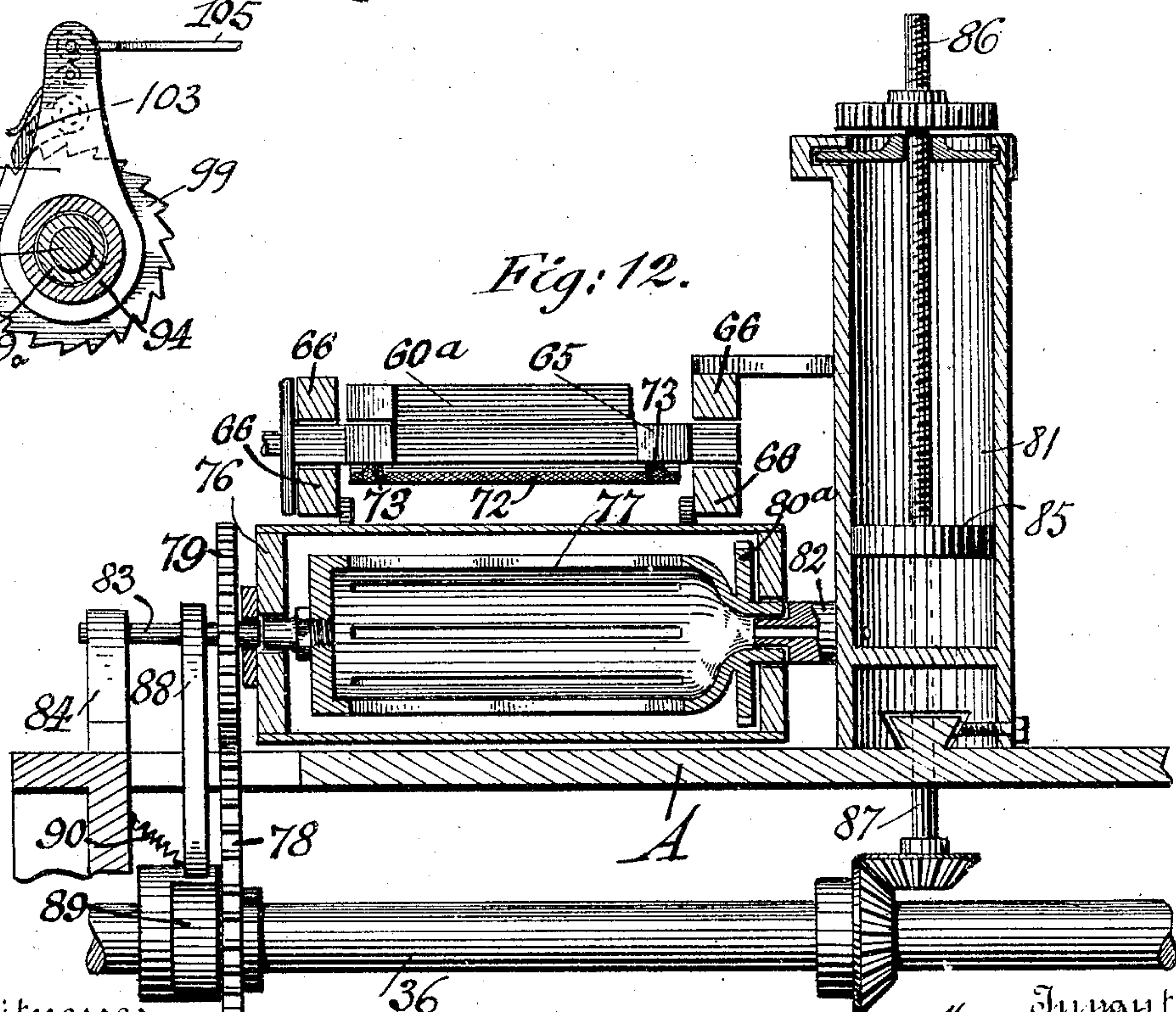
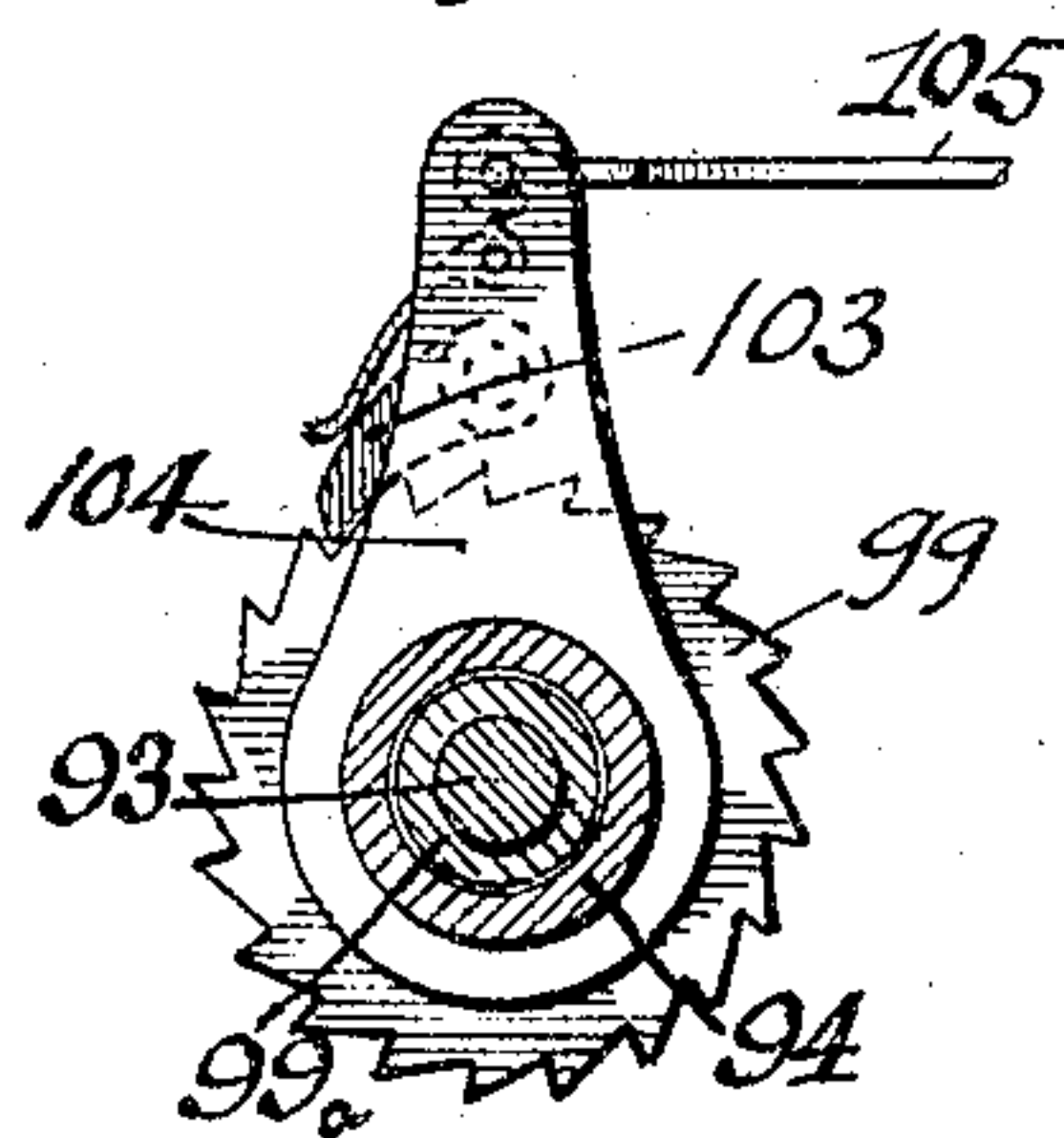
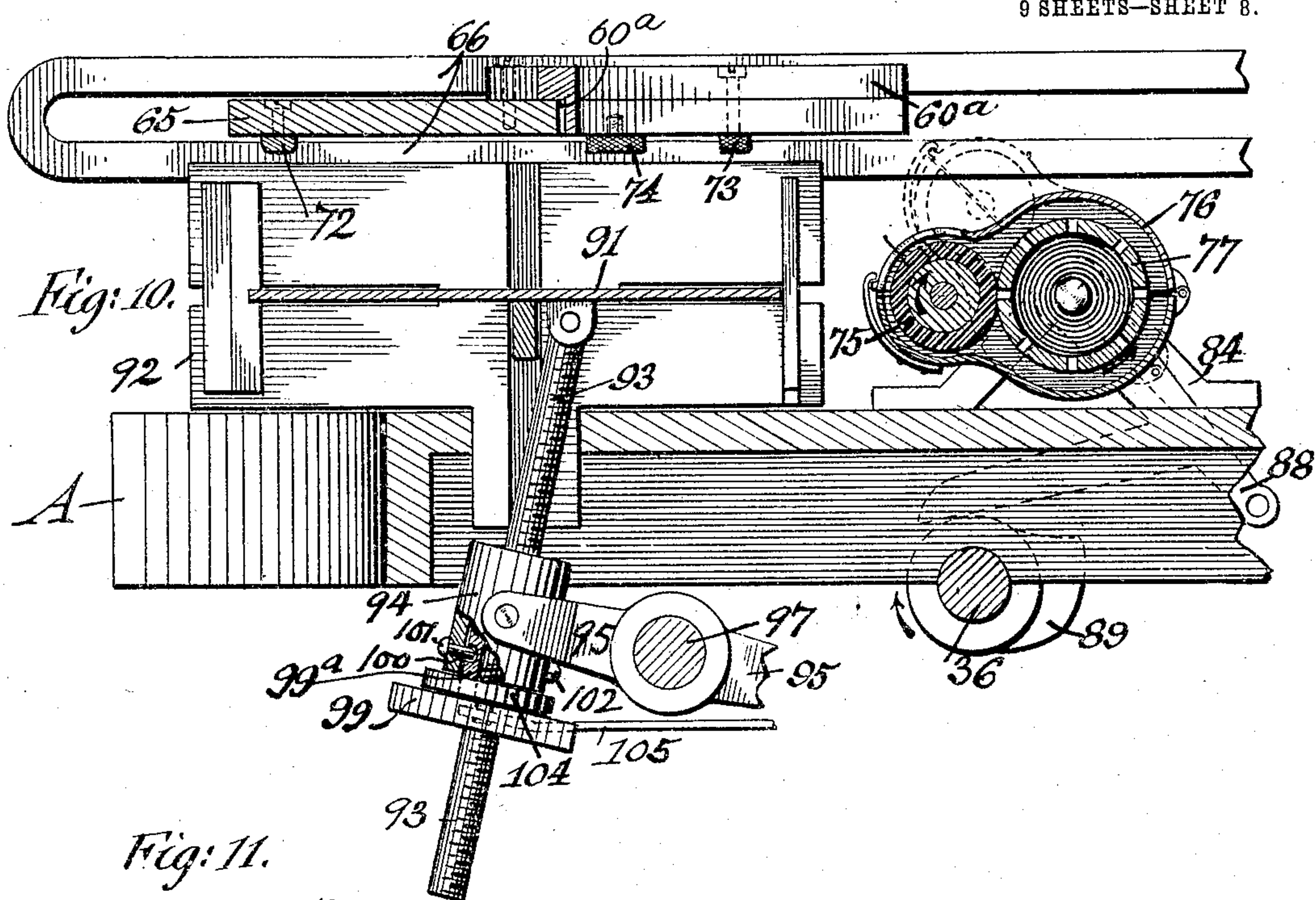


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9 SHEETS—SHEET 8.



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9 SHEETS—SHEET 9.

Fig: 15.

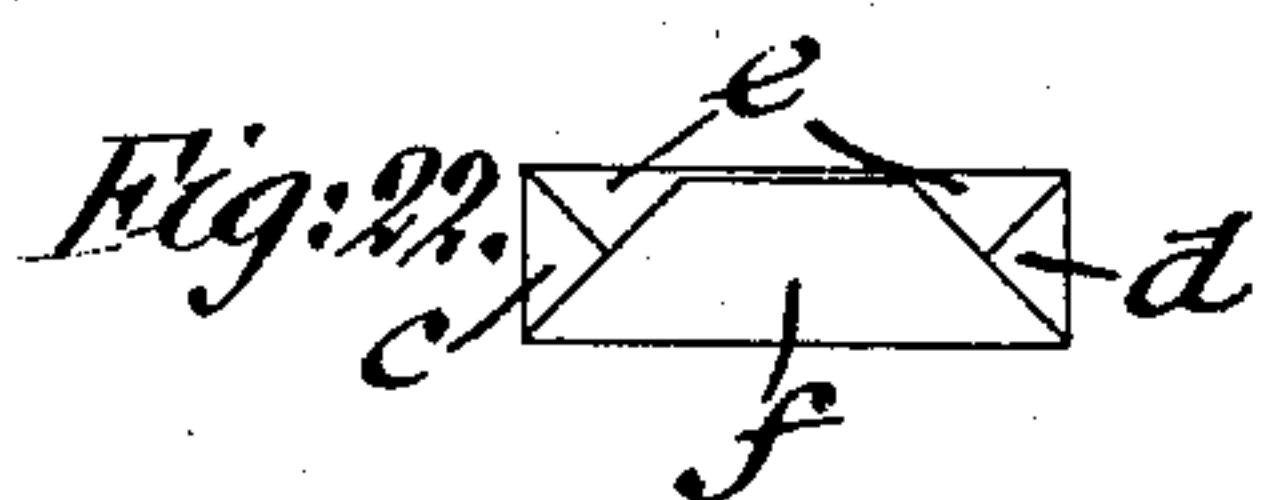
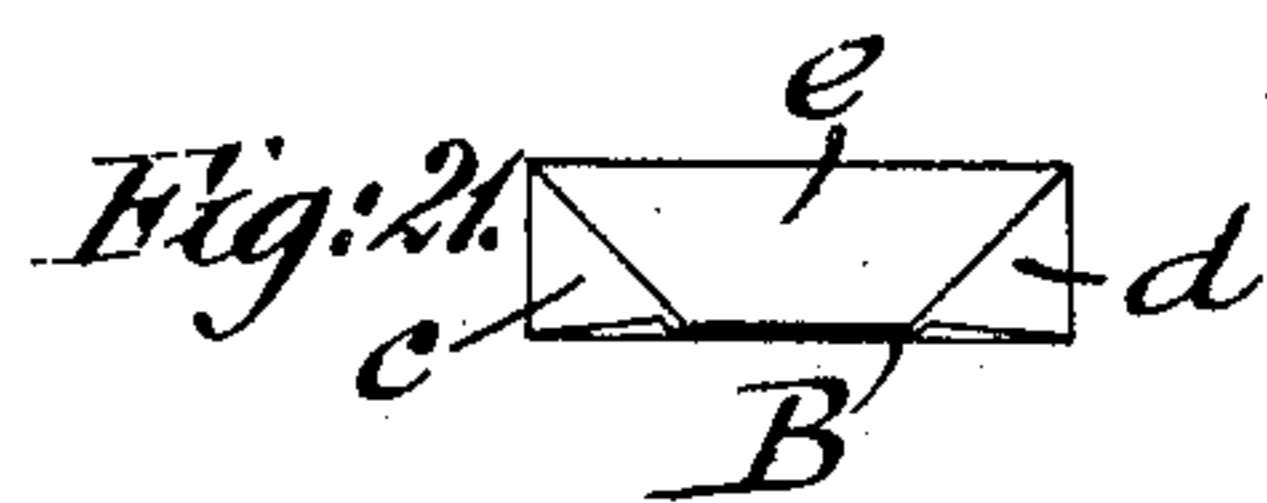
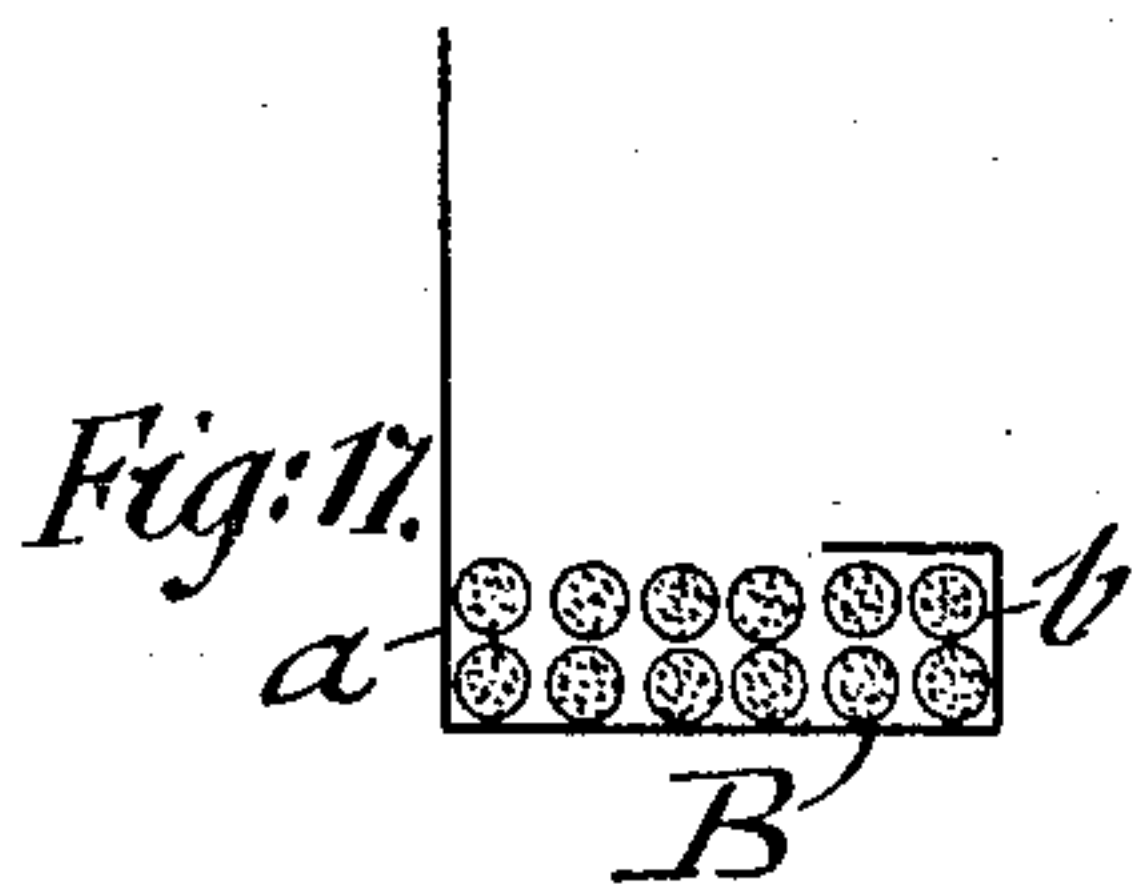
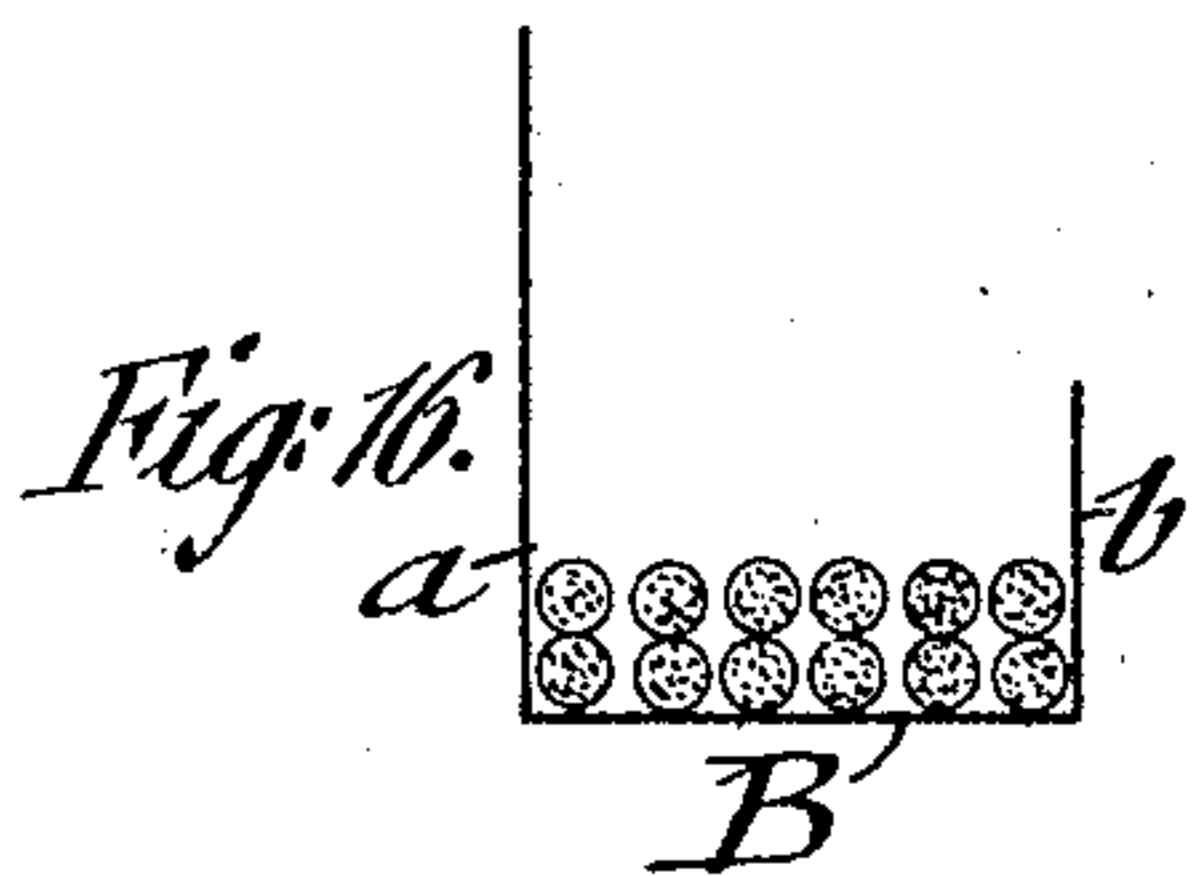


Fig: 13.

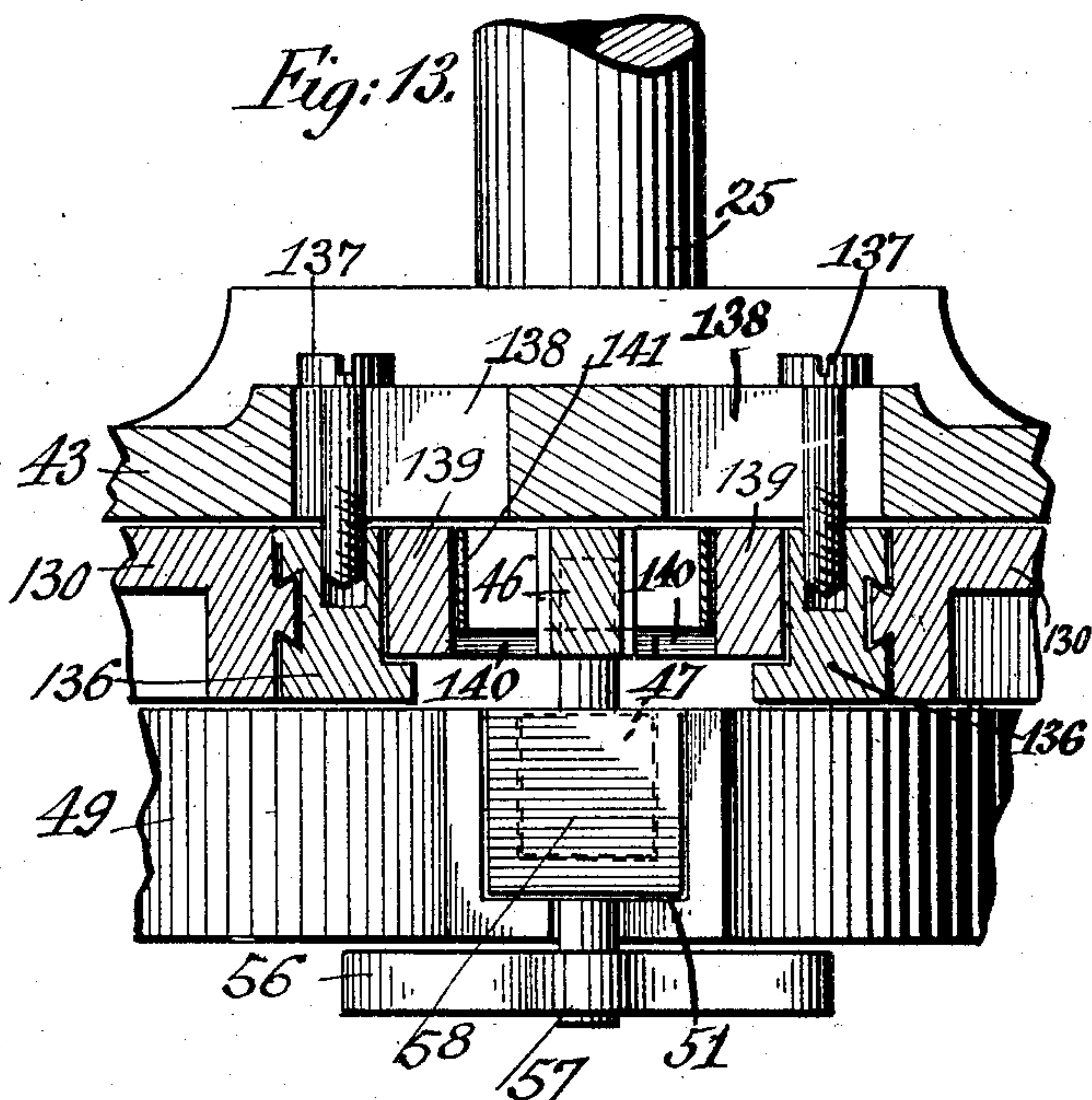
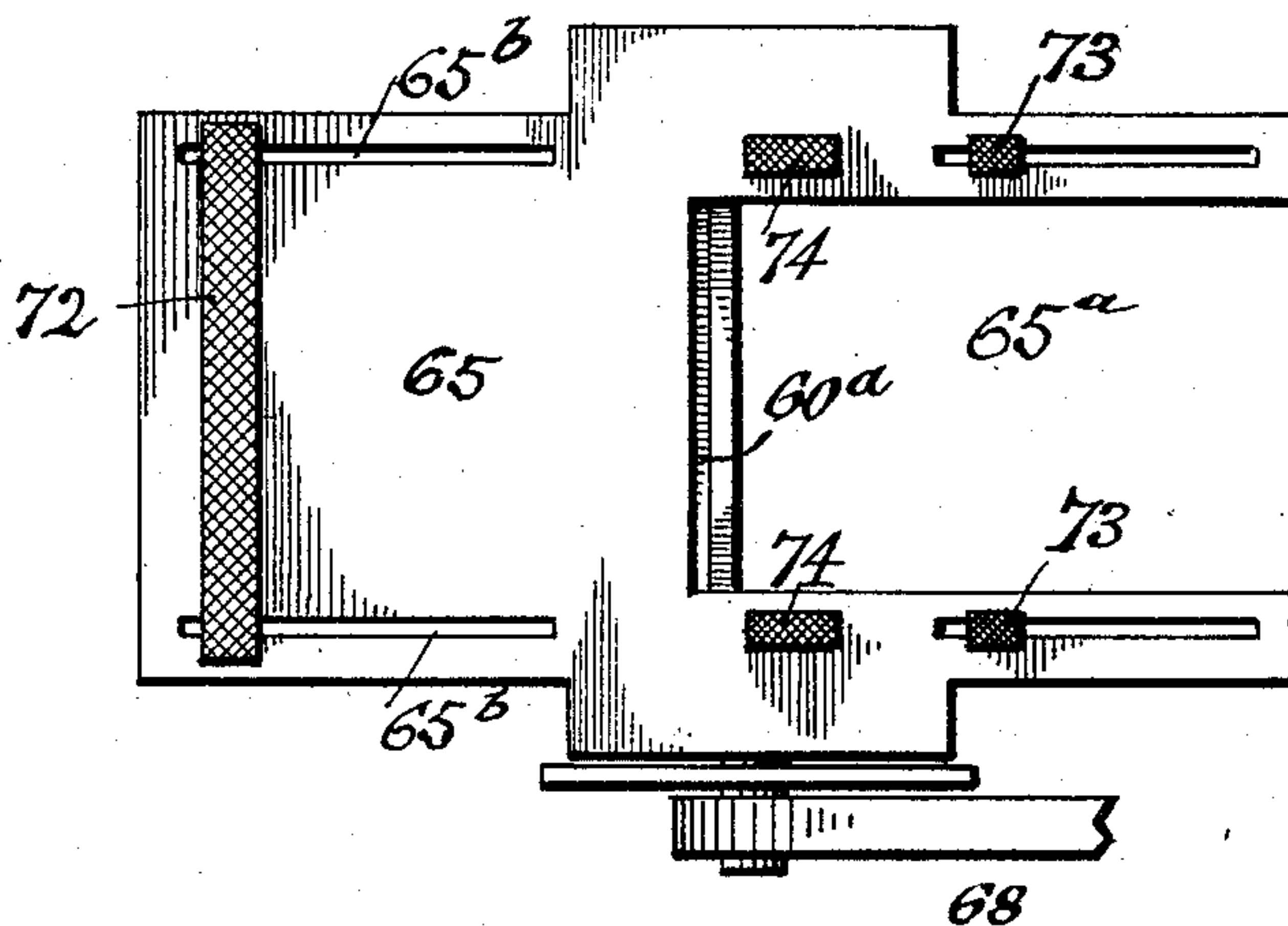


Fig: 14.



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UNITED STATES PATENT OFFICE.

MANUEL PLACER, OF HAVANA, CUBA, ASSIGNOR TO ADOLFO MOELLER & CO., OF HAVANA, CUBA, A FIRM.

CIGARETTE-PACKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 788,494, dated April 25, 1905.

Application filed December 26, 1903. Serial No. 186,734.

To all whom it may concern:

Be it known that I, MANUEL PLACER, a citizen of the Kingdom of Spain, residing in Havana, in the Republic of Cuba, have invented certain new and useful Improvements in Cigarette-Packing Machines, of which the following is a specification.

The object of this invention is to provide a machine which will rapidly and economically package cigarettes, cigars, and similar articles, the packaging material being supplied to the machine in the form of suitable blanks, and the articles to be packaged being supplied in suitable form for that operation.

For this purpose the invention comprises means for gumming a blank, means for feeding cigarettes onto the gummed blank, and means for bending the blank around the cigarettes with the gummed portions constituting overlapping flaps, to thereby form a box inclosing the cigarettes; and the invention consists, further, of certain details of construction and combinations of parts, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is an end elevation of a cigarette-boxing machine embodying my invention. Fig. 2 is a vertical section on line 2 2, Fig. 1. Fig. 3 is a vertical section on line 3 3, Fig. 2. Fig. 4 is a vertical section on line 4 4, Fig. 2. Fig. 5 is a vertical section on line 5 5, Fig. 2. Fig. 6 is a plan view of the machine. Fig. 7 is an elevation, on a larger scale, of a portion of a disk carrying a series of forming-pockets employed in the packaging operation. Fig. 8 is a vertical section on line 8 8, Fig. 7. Fig. 9 is a vertical section on line 9 9, Fig. 7. Fig. 10 is a detail view showing the gumming device and the blank-raising device on line 10 10, Fig. 6. Fig. 11 shows in detail a pawl-and-ratchet mechanism for advancing the blanks. Fig. 12 is a vertical section through the gumming-roller and the gum-reservoir on line 12 12, Fig. 6, on a larger scale. Fig. 13 is a horizontal section on line 13 13, Fig. 7, on a larger scale. Fig. 14 is a bottom view of the blank-carrier; and Figs. 15 to 22, inclusive, illustrate

successive stages in the folding of the blank around the cigarettes.

Similar characters of reference indicate corresponding parts.

Referring to the drawings, A indicates the frame of the machine. In suitable journals of the same is mounted a main shaft 25, that is rotated intermittently from a power-shaft 26 through the medium of mutilated gears 27 and 28, so arranged that during one rotation of the gear 27 the shaft 25 will first rotate for a certain fraction of its revolution—namely, one-sixth—and thereupon the gear 27 will continue the balance of its revolution, while the gear 28 and the main shaft remain stationary. Upon the second revolution of the gear 27 gear 28 and main shaft 25 will move through a second sixth of one revolution and again remain stationary, and so on, the gear 27 making six continuous revolutions to one intermittent rotation of the main shaft.

It is preferable to arrange the complete cigarette-boxing devices in duplicate, as will be seen from Figs. 2 and 6, but having only one cigarette-reservoir, the cigarettes being passed therefrom into a raceway extending from one boxing device to the other and means being provided whereby cigarettes fed into said raceway are conveyed to both of said boxing devices. Both of the boxing devices are operated from the main shaft 25 and operate simultaneously. These boxing devices are duplicates. Hence but one will be described.

Cigarette-feeding mechanism.—The cigarettes are placed in a suitable hopper 29, transversely of the same, and are fed from said hopper into a raceway 30 (see Fig. 2) by an endless belt 31, which is given alternately forward and backward motion by a crank-arm 32 on one supporting-roller of the belt, which arm is rocked by a pitman 33 on a disk 34, the latter being constantly rotated by a belt 35, that engages a sheave 35^a on an auxiliary shaft 36. The shaft 36 receives motion from the power-shaft 26 by a sprocket-and-chain connection 37. The cigarettes delivered into the raceway are moved at the proper times to

the ends of said raceway by a push-plate 38, supported by an arm 38^a, which is guided on the frame of the machine and engaged by the forked extremity of a lever 39, carrying a
 5 pin 40 at its other end, that engages a cam-slot 41 in a cam 42, secured on the said auxiliary shaft 36.

Box-forming disk.—Adjacent each end of the raceway 30 rotates a disk 43, which is
 10 provided with a series of transverse forming-pockets 44, arranged equidistant on its periphery. There are six of these pockets, and they are so disposed that at the end of each one-sixth of a rotation of the disk one of these
 15 pockets will be brought into alinement with the end of the raceway. The bottom of each of said pockets is formed by a plate 45 on the upper end of a rod 46, which latter is normally in lowermost position, but which at
 20 the proper time in the operation of the machine is advanced, thereby ejecting the finished package of cigarettes. This movement is effected through the medium of a pin 47, provided with an antifriction-roller on each
 25 of the rods 46, said pin sliding in an irregular slot 48 of a stationary disk 49, the latter being concentric with the shaft 25, except at its portion 50, where it extends outwardly therefrom, as seen in Fig. 7.

30 The disk 49 is provided at its upper part with a recess 51, the walls of which form guides for a block 58. The pin 47 is free to move from the slot 48 when at this portion of its travel, at which stage the bottom plate
 35 45 is advanced to the top of a channel, for reasons hereinafter set forth, by the following means: A second auxiliary shaft 52 is rotated from the said shaft 36 by suitable
 40 gears 52^a 52^b 52^c. This shaft 52 carries a cam 53, that engages one end of a lever 54, pivoted on an upright 55, (see Fig. 5,) which lever is retracted by a spring 54^a. The other end of the lever 54 is pivoted to a connecting-rod 56, the opposite end of which carries a
 45 pin 57, that engages a block 58, which is thereby caused to reciprocate in the said slot 51 in the disk 49 upon the engagement of the cam. This block 58 has a transverse slot 58^a therein, that is normally in alinement with
 50 the slot 48 in the disk 49; but said cam 53 is so timed that it will reciprocate the slotted block 58 when one of the said rollers 47 on the bar 46 lies in the said transverse slot 58^a, which will have the effect of reciprocating the
 55 bottom 45 of the channel.

Box-forming plunger.—Directly above the box-forming pocket 44 which is at the time in uppermost position and in proximity to the end of the raceway 30 is arranged a plun-
 60 ger 60, normally suspended with its bottom just above the top plane of the cigarettes in the raceway. At the proper stage of the operation this plunger is brought downward and then retracted by means of a connecting-
 65 rod 61, connected with the plunger at its up-

per end and pivoted at its lower end to a lever 62, mounted on the upright 55, the other end of said lever being engaged by a cam 63 on the auxiliary shaft 52, which cam rocks the lever against the force of a retracting-
 70 spring 64.

Blank-carrier.—The blanks for forming the boxes which have been gummed at the proper places by means hereinafter set forth are conveyed into position above the upper-
 75 most pocket 44 in the disk by a carrier 65, that is guided between suitable rails 66 and reciprocated from a lever 67, to which it is connected by a link 68. The lever 67 rocks on the main shaft 25 and is pivoted at its op-
 80 posite end to a slotted bar 69, that engages the auxiliary shaft 52 by the walls of its slot, and which bar carries a roller 70, that engages the walls of a slotted cam 71, secured to the said shaft 52, as best shown in Fig. 3. The car-
 85 rier 65 (shown in detail in Fig. 14) consists of a plate having an opening 65^a at one end, which plate carries at one end a transverse gumming-block 72, which is longitudinally adjustable by means of screws or bolts pass-
 90 ing through slots 65^b in the plate. The plate carries at its opposite end, at each side of the same, an adjustable block 73. Said plate carries also a pair of intermediate stationary
 95 blocks 74 in alinement with the blocks 73. All of said blocks are secured by suitable clamping-screws to the plate at the lower face of the same, and the blocks 72 and 73 are ad-
 justable by said screws.

Gumming means.—The paper blanks are
 100 fed up to the carrier at the rear end of its path of movement. While the carrier is moving rearwardly from the plunger or forming-block to the blank-feeding means, the
 105 gumming-blocks 72 73 74 contact with a gumming-roller 75, of rubber or other suitable material, whose shaft is supported in the end portions of a supporting-box 76. This box carries a gum-feeding drum 77, having longi-
 110 tudinal slots therein, which drum is in frictional engagement with the said roller 75. A gear 78 on the shaft 36 rotates a loose gear 79, and the latter, through a gear 80, rotates the gumming-roller. At the opposite end of the gumming-roll shaft is a pinion (not shown)
 115 which engages a gear 80^a, connected with the feeding-drum 77, whereby the latter is rotated. The gum or adhesive is contained in a reservoir 81, (best shown in Fig. 12,) said reservoir carrying at its lower portion a lug
 120 82, on which one end of the drum 77 rotates. The lug is provided with a bore for permitting passage of the gum. Said lug forms also a bearing for the casing 76. The opposite end of the casing is supported by a shaft
 125 83, supported by a standard 84 of the frame. The gum in the cylindrical reservoir 81 is forced through the bore of the lug 82 by a piston 85, the screw-threaded piston-rod 86 of which is rotated by gears from a spindle 87,
 130

the latter being driven by bevel-gears from the shaft 36. When the casing 76 carrying the gumming-roller and the drum is rocked, the gumming-roll end of the casing will be moved upward, thereby bringing the roller 75 into the position indicated in dotted lines in Fig. 10 into the path of the gumming-blocks on the carrier. This rocking is effected by means of an arm 88, secured to the shaft 83. Said arm is engaged by a cam 89 on the shaft 36. A retracting-spring 90 serves to return the arm 88 to its normal position. The cam 89 is so designed that the gumming-roller will be raised only while the carrier is being moved past it toward the blank-holder, whereupon it will be immediately returned to its former position and will remain there until the return of the carrier. The gum passes through the slots in the cylinder 77 and coats the gumming-roller 75, from which it is taken by the carrier on the return movement of the same.

Blank-feeding means.—The blanks B are placed with their inner or cigarette-engaging face upward on a plate 91, which is guided in and reciprocates vertically in a box 92 under one end of the path of movement of the carrier. The plate 91 is pivotally supported on a threaded rod 93, slidable in a sleeve 94, the latter being pivoted at one end of an arm 95. This arm is pivoted on a stud 97 on the frame, and its other end is engaged by a cam 98, secured to the auxiliary shaft 36. This cam is so adjusted relatively to the movement of the carrier that it will rock the shaft and raise the blank-plate 91 when the carrier is at the end of its movement above the box, whereby the uppermost blank will adhere to the gumming-blocks at the lower side of the plate. The plate then immediately descends with the other blanks and will not be again raised until the carrier has been advanced and then brought back to this position. In order to bring the uppermost blank on the plate always to the same position in engagement with the gumming-blocks on the carrier, I provide means for intermittently raising the threaded rod in the sleeve 94, which means comprise a ratchet-wheel 99, having an internally-threaded hub 99^a, engaging the rod 93, which ratchet-wheel has a hub portion projecting into an enlarged portion of the bore of the sleeve. The hub has an annular groove 100, into which project screws 101 and 102 of the sleeve 94. Hence the rotation of the ratchet-wheel will cause the rod 93 to be moved upward or downward. The ratchet-wheel 99 is rotated by a pawl 103, that is pivoted on an arm 104, loosely mounted on the hub portion of the ratchet-wheel. The arm 104 is rocked by a connecting-rod 105, that is pivoted to an arm 118 on a spindle 117, journaled in the frame of the machine. Thereby the ratchet-wheel will be rotated intermittently to move the plate 91

upward as fast as the blanks are conveyed therefrom by the carrier.

Operation of the machine.—When the uppermost blank B has been engaged by the gumming-blocks on the carrier, it will adhere thereto while the carrier moves the length of its travel. The blank is thereby brought to a position above the uppermost of the pockets 44 in the disk 43, in which position it will be also underneath the plunger 60 and just below the plane of the cigarette-raceway 30. The blank lies between the said pocket and plunger. The block 38 moves in the raceway 30 and advances a number of cigarettes in an unbound bunch onto the blank. The cigarettes abut at their outer ends against a stop 60^a, which consists of an angular frame secured, by clamping-screws, adjustably upon the carrier 65. At one side the cigarettes are retained by the side arm of the frame 60^a and at the other side by a guide which is a continuation of the front wall 110 of the raceway 30. Said front wall and guide are adjustable laterally of the raceway by means of suitable adjusting-screws 110^a 110^b 110^c to adapt the raceway to different sizes or quantities of cigarettes and to render the raceway somewhat narrower at the ends than at the center, and thereby compact the cigarettes before delivery. The cigarettes are arrested by the stop 60^a over the space 65^a of the carrier and descend therein to the blank upon which they rest. The plunger descends. When it reaches the cigarettes, the bottom plate 45 of the channel 44, which has previously been moved upward to the top of the pocket, descends simultaneously with the further movement of the plunger. This operation causes the cigarettes to draw the blank B with them partially into the pocket 44 and bend up the end portions *a b* of the blank to an upright position, as indicated in Fig. 16. Thereupon the plunger 60 is returned in upward direction to its former position. The right-hand upright portion of the blank is now folded down. This is accomplished by a folder consisting of a sliding plate 111. (See Fig. 6.) Shaft 52 carries a cam 112, Fig. 4, that engages a roller 113 on a forked rod 114, whose fork engages the said shaft and whose other end is pivoted to a lever 115, loosely journaled on the shaft 36. The other end of this lever 115 is connected by a link 116 with an arm on the spindle 117. On this spindle 117 is a slotted arm 118, that is connected with the slide 111 by a pitman 119. By these means the slide is reciprocated from the shaft 52 at the proper time in the operation of the machine. The folder during its movement folds the forward end *b* of the blank into the position shown in Fig. 17. The next step is to rotate the disk 43, which carries in its uppermost pocket 44 the blank with the cigarettes in it. At the beginning of this latter movement

the remaining upright end portion *a* of the blank is immediately engaged by a stationary roller 120, adjustable on the frame, that folds down this upright portion *a* and brings the edge or end of the blank that was formerly in engagement with the gumming-block 72 of the carrier on top of the already-folded flap *b* in the position shown in Fig. 18, the two end flaps forming the top of the box. During the latter part of this one-sixth of a revolution of the disk 43 each of the projecting end portions *c* of the blank B engages a stationary folder consisting of a nose 121, arranged at the side of the disk, so that upon the disk coming to rest each end portion will be folded in at one of the four edges at each end of the box, Fig. 19. It will be understood that this movement of the disk for one-sixth of a revolution brings the succeeding pocket 44 into position adjacent the cigarette-raceway and below the plunger and that another gummed blank is now brought to filling position and cigarettes deposited thereon, as above described. At the same time that the folder 111 is reciprocated to fold down one of the top flaps of the box by the rocking of the spindle 117 two hooked arms 121^a, secured to said spindle, are thereby brought into operation and act to fold down at each end of the first box, the end flaps *d* lying opposite those just previously folded down by the nose members 121. The hook members 121^a return then to their former position. The flaps are now folded, as shown in Fig. 20. The top and bottom flaps at each end of the box are now folded by means of stationary folders consisting of curved guides 123 124. Said guides serve also to retain the packages in the pockets of the disk 43 and to retain the flaps *a b* together, so that the same are securely sealed during transit. The spirally-curved folding-plates 123 124 are secured to a guide 122 at each side thereof, said guide being supported concentric with the disk 43. The folding of the two top end flaps *e* is accomplished during the second stage of movement of the disk—that is, through the second sixth of its revolution—by the plates 123. On the third intermittent movement of the disk the two remaining or bottom end flaps *f* at each end of the box are folded down by the folders 124, located at each side of the guide 122. The flap last folded down at each end was the portion at each side of the blank engaged by the blocks 74 during the gumming operation. These overlapping flaps are pasted together and retain the end flaps that lie beneath them. In the further movement of the box-carrying disk the now pasted end portions are pressed inwardly, and thereby securely sealed, by strips 127 on each side of the curved guide-way, said presser-strips being continuations of the folding-plates 124. When the disk has made about three-fourths of a revolution, the outwardly-extending portion 50 of the slot 48

causes the bottom plate 45 of the pocket 44 to advance and eject the finished box.

In order to provide for operation upon various-sized blanks for producing larger or smaller boxes, the portions constituting the sides of each of the pockets 44 are made transversely adjustable and preferably simultaneously adjustable. Between the pockets of the disk 43 are arranged segmental adjusting-plates 130, each of which is secured to a guide-block 131, which projects into and is slidable in a slot 132 in the disk 43. Each of said guide-blocks 131 is provided with a laterally-projecting pin 132^a, carrying an antifriction-roller and located in an eccentric slot 133 in a disk 134, mounted loosely on the shaft 25, said slots being symmetrically disposed in said disk. From Figs. 3, 4, and 7 it will be seen that by rotating the disk 134 slightly with relation to the disk 43 the blocks 131 and the said segmental adjusting-plates 130 will be adjusted radially with relation to the main shaft 25. When these plates 130 have been adjusted, they are secured in such position by tightening their screws 135, which serve thereby to clamp them and the blocks 131 tightly against the disk 43. The sides of the pocket 44 are formed by bars 136, having V-shaped outer ends, which bars have a dovetail connection with the edge of the adjacent adjusting-plate 130. Hence when the plates 130 are adjusted to and from the axis of the disk the bars 136 will be moved to and from each other, thereby widening or narrowing the pockets 44. The bars 136 when adjusted are secured to the disk 43 by means of clamping-screws 137 passing through slots 138 in said disk, the slots being perpendicular to the bars, as seen in Figs. 7 and 13. Suitable means are necessary to properly guide the bottom plate 45 and its supporting-rod 46. Such means are provided in a strip 139 on each side, that engages the opposite faces of the bars 136. The strips 139 are connected with the rod 46 by laterally-projecting arms 140, dovetailed in corresponding channels in the rod 46. Springs 141, arranged between the strips 139, press the same outwardly from the bar 46 and into engagement with the strips 136, said springs thereby automatically adjusting the strips to the bars 136. A pin 142 projects from each bar 46 into a radial slot 143 in the disk 43 and serves to insure radial movement of the bar.

From the foregoing the continuous operation of the machine will be readily understood. Before one box is finished another one is in the course of being formed, and there are practically four boxes being operated on at one time, which are respectively in the successive stages of formation. When one blank, with the cigarettes thereon, is being forced into the channel 44 by the plunger, another box in the next channel in the direction of rotation is having its opposite ends folded down. Another box in advance of the last named has

just had one side flap folded down. The box in advance of that is having its final end flap folded down to finish the box, and the box in advance of that is approaching the position where it will be ejected from the machine.

While I have shown six box-forming pockets on the disk with the folding means arranged correspondingly, it is obvious that a greater or less number may be used by properly disposing the several members for folding down the end flaps and by properly timing the means for feeding the gummed blanks and the cigarettes.

It will be observed that the main shaft 25 as well as the auxiliary shafts 36 and 52 extend across the machine. Said three shafts are driven, as hereinbefore described, from the power-shaft 26. Excepting these shafts and the means for feeding the cigarettes onto the gummed blank, all of the above-described parts are in duplicate at the end portions of the three shafts, as will be seen from Figs. 2 and 6, but are arranged in reverse order on the said shafts for obvious reasons.

When a forming-pocket of the left-hand disk 43 is brought opposite the end of the cigarette-raceway, the reciprocating pusher-block 38 is moved to the left from the position shown in Fig. 2, thereby advancing the cigarettes last delivered in the raceway from below the hopper toward the end of the raceway, whereby a charge ahead, which has been previously delivered into the raceway, is moved out upon the blank, as before described. As soon as the block 38 has in this movement passed beyond the hopper-opening another lot of cigarettes at once falls into the raceway. The block 38 now moves in opposite direction and advances these cigarettes toward the pocket of the right-hand disk, thereby forcing a charge out of the raceway at the right-hand end of the same. Thereupon the block 38 remains in the position in which shown in Fig. 2 until the next filling operation. The complete reciprocation of the block 38 is effected rapidly, so that the two charges are delivered practically simultaneously. The remaining operations are also performed simultaneously at both sides of the machine.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a cigarette-packing machine, the combination of a disk having a series of pockets equidistant on its periphery and extending axially of the disk, a plurality of side bars each forming one of the opposite side walls of a pocket, means for supporting said bars for adjustment transversely of the pocket, an adjusting-plate arranged between the opposite bars of adjacent pockets, each bar having a dovetail connection with said plate, means for radially adjusting said plates simultaneously to thereby adjust said bars, and

means for securing said plates in their adjusted positions.

2. In a cigarette-packing machine, the combination of a disk having a series of pockets equidistant on its periphery and extending axially of the disk, a plurality of side bars each forming one of the opposite side walls of a pocket, means for supporting said bars for adjustment transversely of the pocket, an adjusting-plate arranged between the opposite bars of adjacent pockets, each bar having a dovetail connection with said plate, means for radially adjusting said plates simultaneously to thereby adjust said bars, means for securing said plates in their adjusted positions, bars, connected one with the bottom of each of said pockets and extending radially of the disk, means for reciprocating each of said bottom bars and bottoms, strips engaging said side bars, lugs extending from each of the latter strips to said bottom bars and having a dovetail connection therewith, and springs interposed between said strips and arranged to retain the same in engagement with the side bars.

3. In a cigarette-packing machine, the combination of a disk having a series of transversely-arranged pockets in its periphery, a plurality of side bars each forming a side wall of one of said pockets, a series of adjusting-plates arranged intermediate of the pockets and having a dovetail connection with said side bars, a block secured to each of said adjusting-plates, an adjusting-disk arranged concentric with said first-named disk and having a series of eccentric curved slots symmetrically arranged in said adjusting-disk, and a pin on each of said blocks and disposed in one of said slots.

4. In a cigarette-packing machine, the combination of a cigarette-raceway, a cigarette-boxing device arranged at each end of said raceway, means for feeding cigarettes into the raceway at an intermediate portion of the same, and means for advancing the cigarettes fed into said part of the raceway to said boxing devices at both ends of the raceway.

5. In a cigarette-packing machine, the combination of a slidable carrier having blank-engaging portions on its under side, a gumming device consisting of a casing, a bearing at each end of the casing whereby the same may be oscillated, a drum pivotally supported inside the casing concentric therewith, said drum having longitudinal slots at its periphery, one journal member of the casing and drum having a bore therein, a reservoir to which said journal is connected and arranged to feed the gum through said bore into said drum, a gumming-roller pivotally supported in said casing and in engagement with said drum therein, said casing having a longitudinal opening opposite a portion of said drum, a lever secured to the casing, and a cam ar-

ranged to engage said lever and rock the casing to bring the roller into the path of the carrier at a certain stage in the movement of the carrier.

- 5 6. In a cigarette-packing machine, the combination of a slidable carrier having blank-engaging portions on its under side, a gumming device consisting of a casing, a bearing at each end of the casing whereby the same
10 may be oscillated, a drum pivotally supported inside the casing concentric therewith, said drum having longitudinal slots at its periphery, one journal of the casing and drum having a bore therein, a reservoir to which said
15 journal is connected and arranged to feed the gum through said bore into said drum, a gumming-roller pivotally supported in said casing and in engagement with said drum therein,

said casing having a longitudinal opening opposite a portion of said drum, a lever secured 20 to the casing, a cam arranged to engage said lever and rock the casing to bring the roller into the path of the carrier at a certain stage in the movement of the carrier, a plunger arranged to slide in said reservoir, and means 25 for regularly advancing said plunger to thereby force the gum into the said drum in the casing.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses. 30

MANUEL PLACER.

Witnesses:

PAUL GOEPEL,
HENRY J. SUHRBIER.