

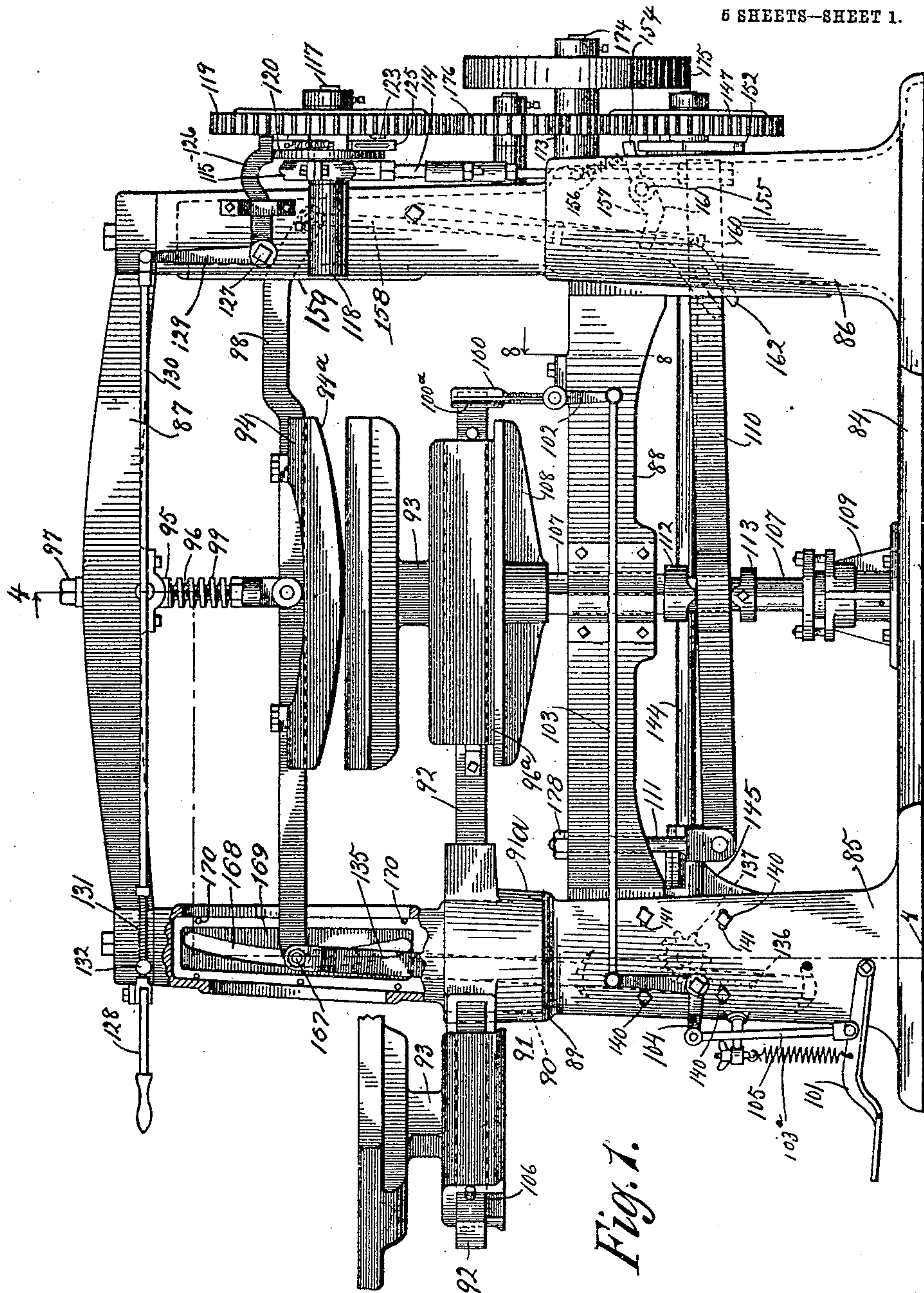
No. 846,890.

PATENTED MAR. 12, 1907.

W. E. ANDRÉE.
IRONING MACHINE.

APPLICATION FILED MAY 27, 1905.

5 SHEETS—SHEET 1.



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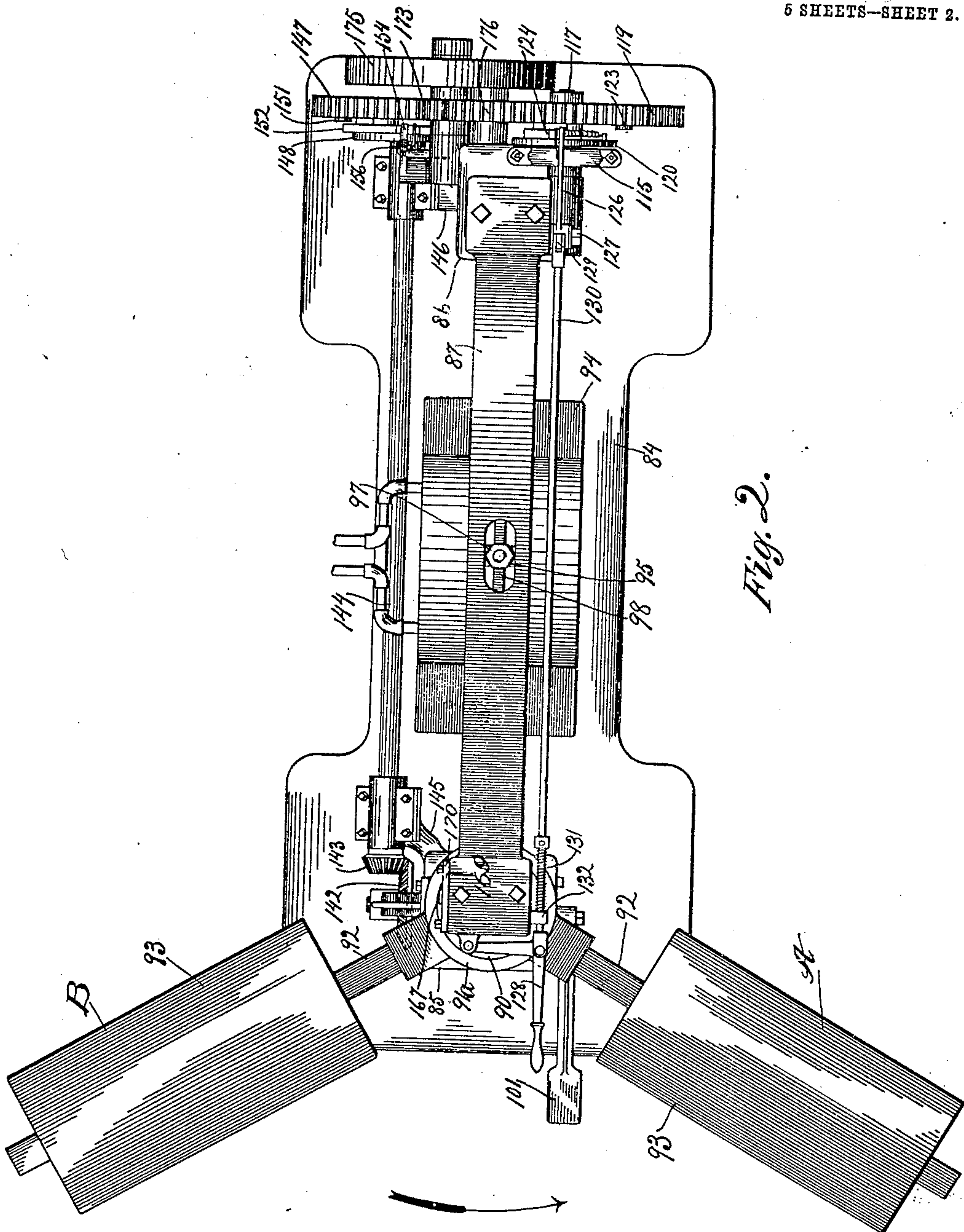


Fig. 2.

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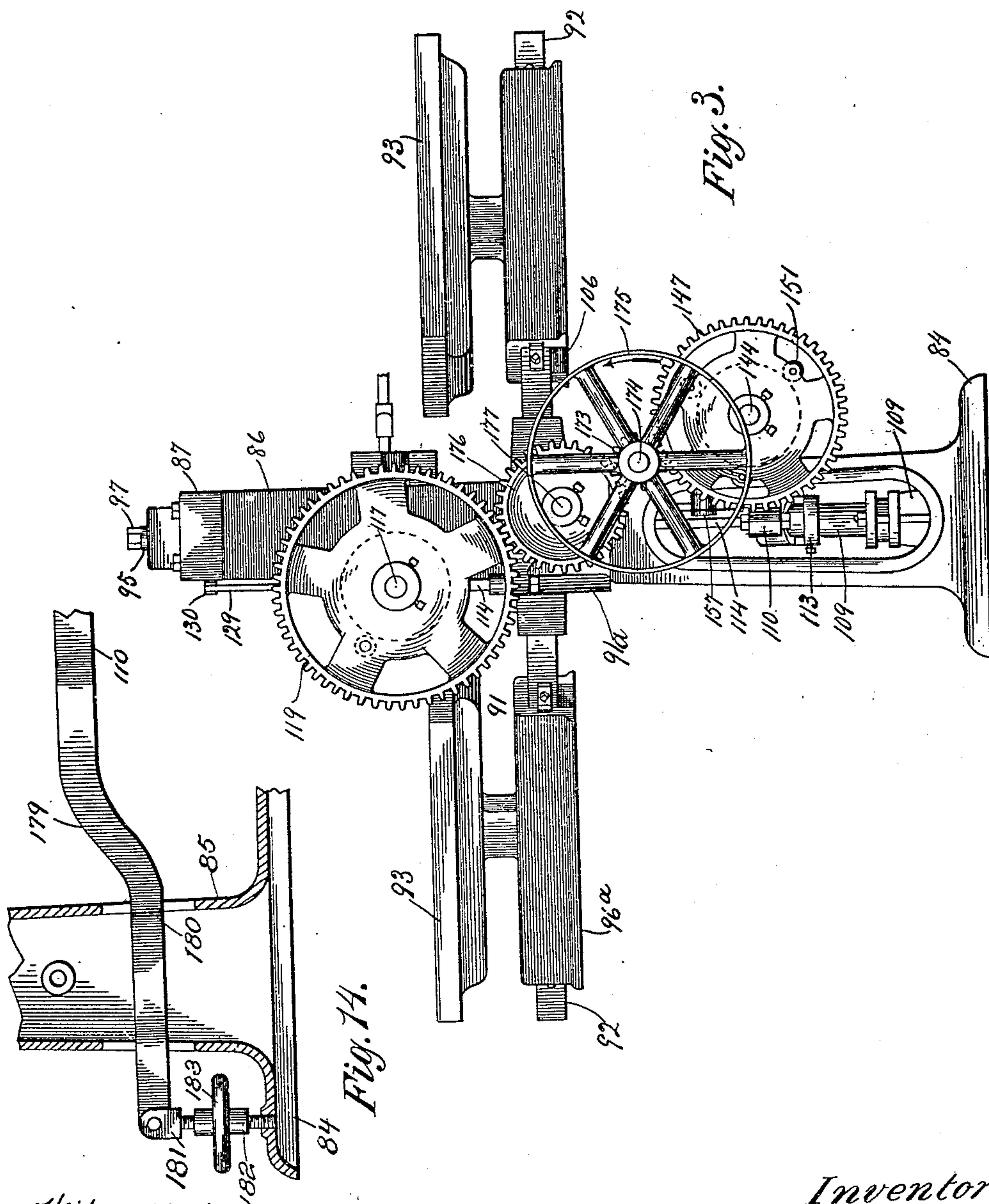
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5 SHEETS—SHEET 3.



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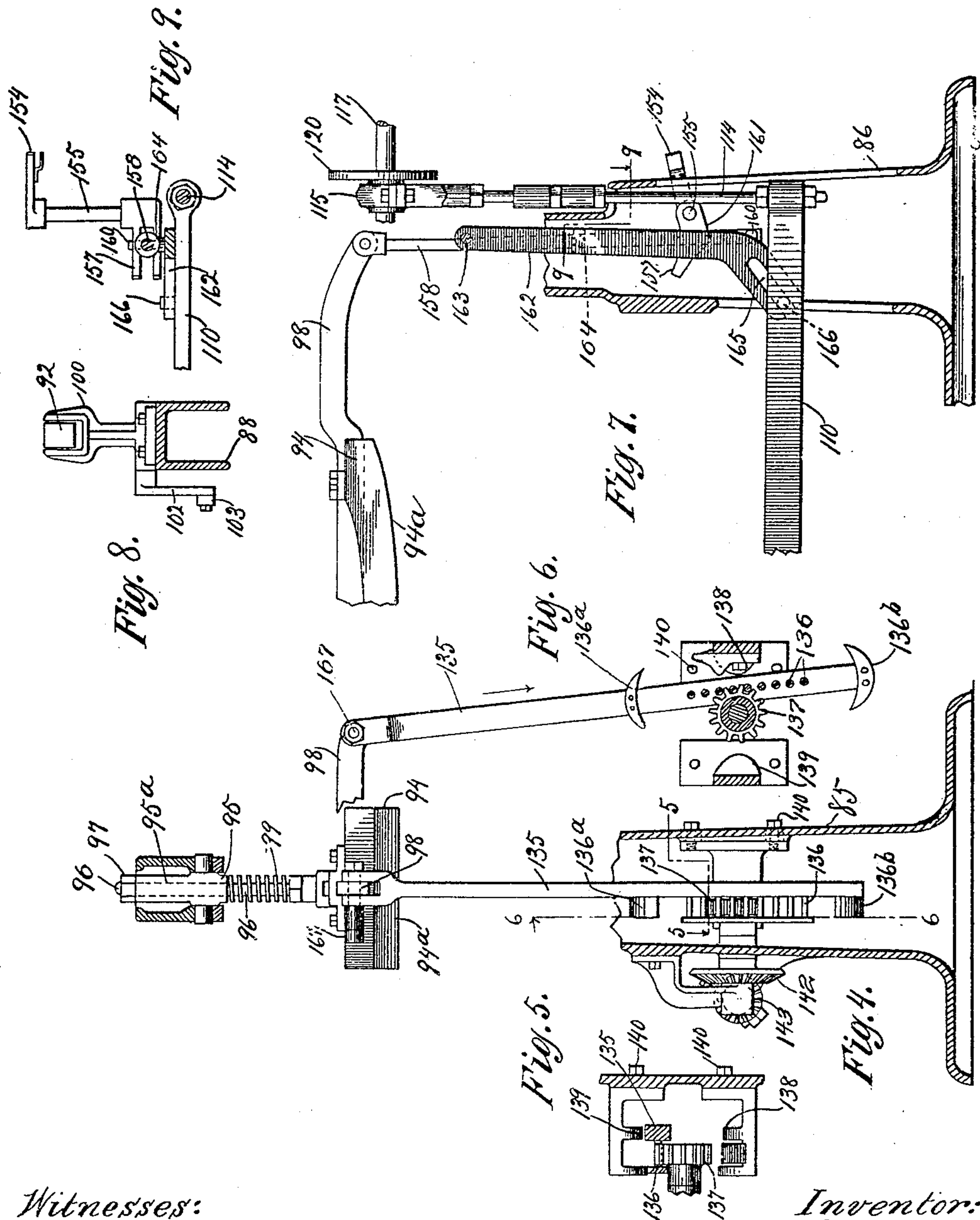
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5 SHEETS—SHEET 5.

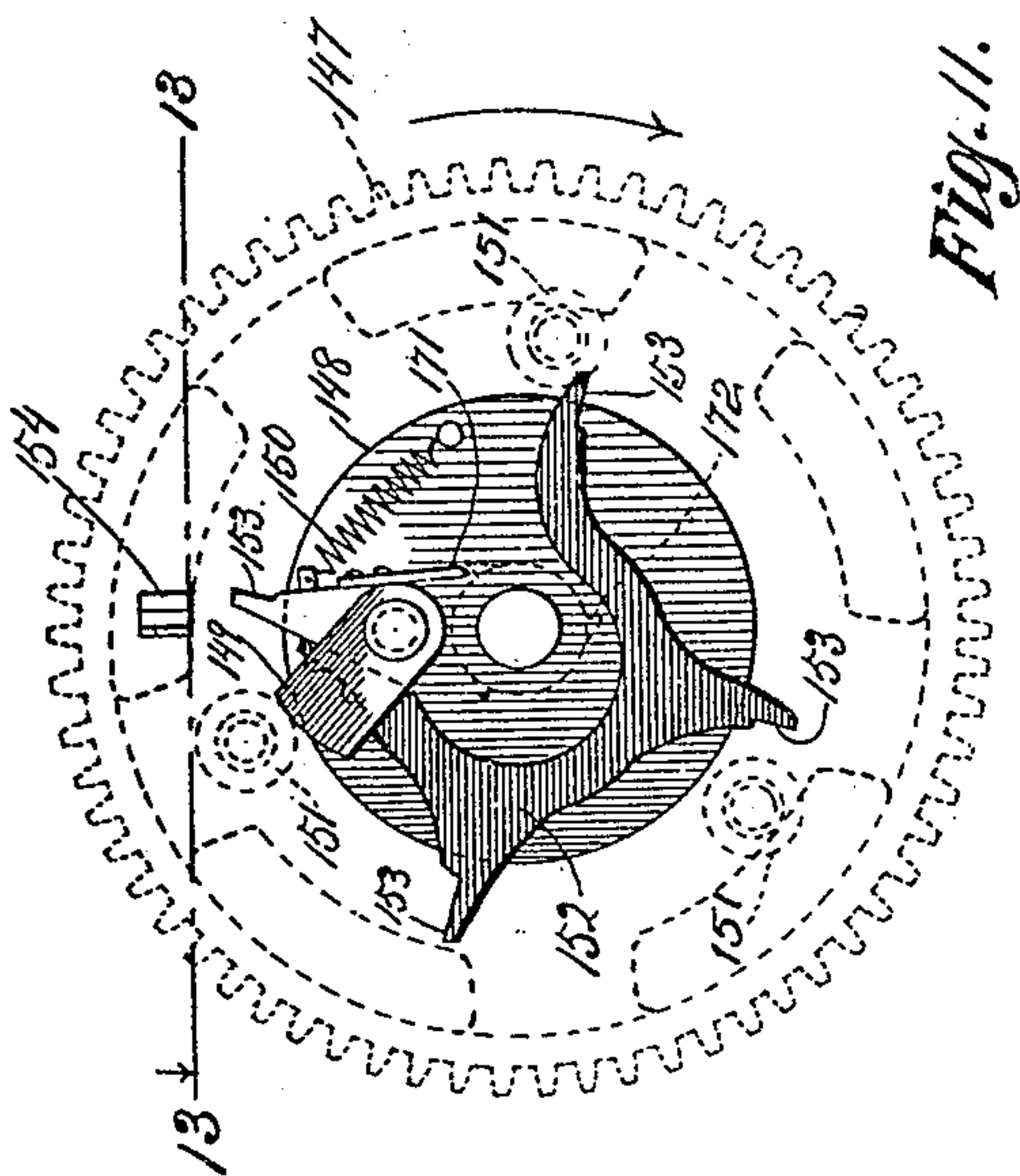


Fig. 11.

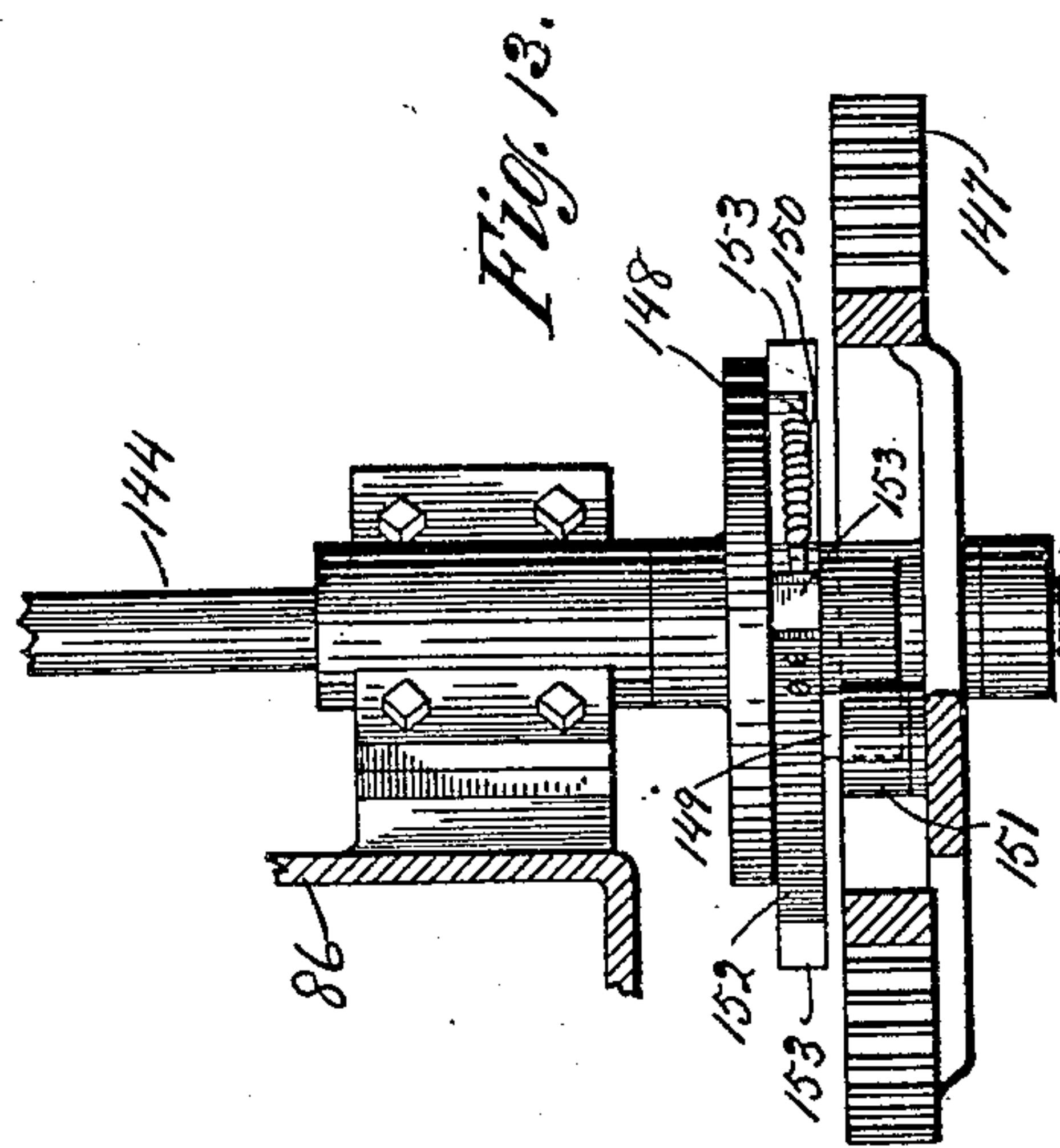


Fig. 13.

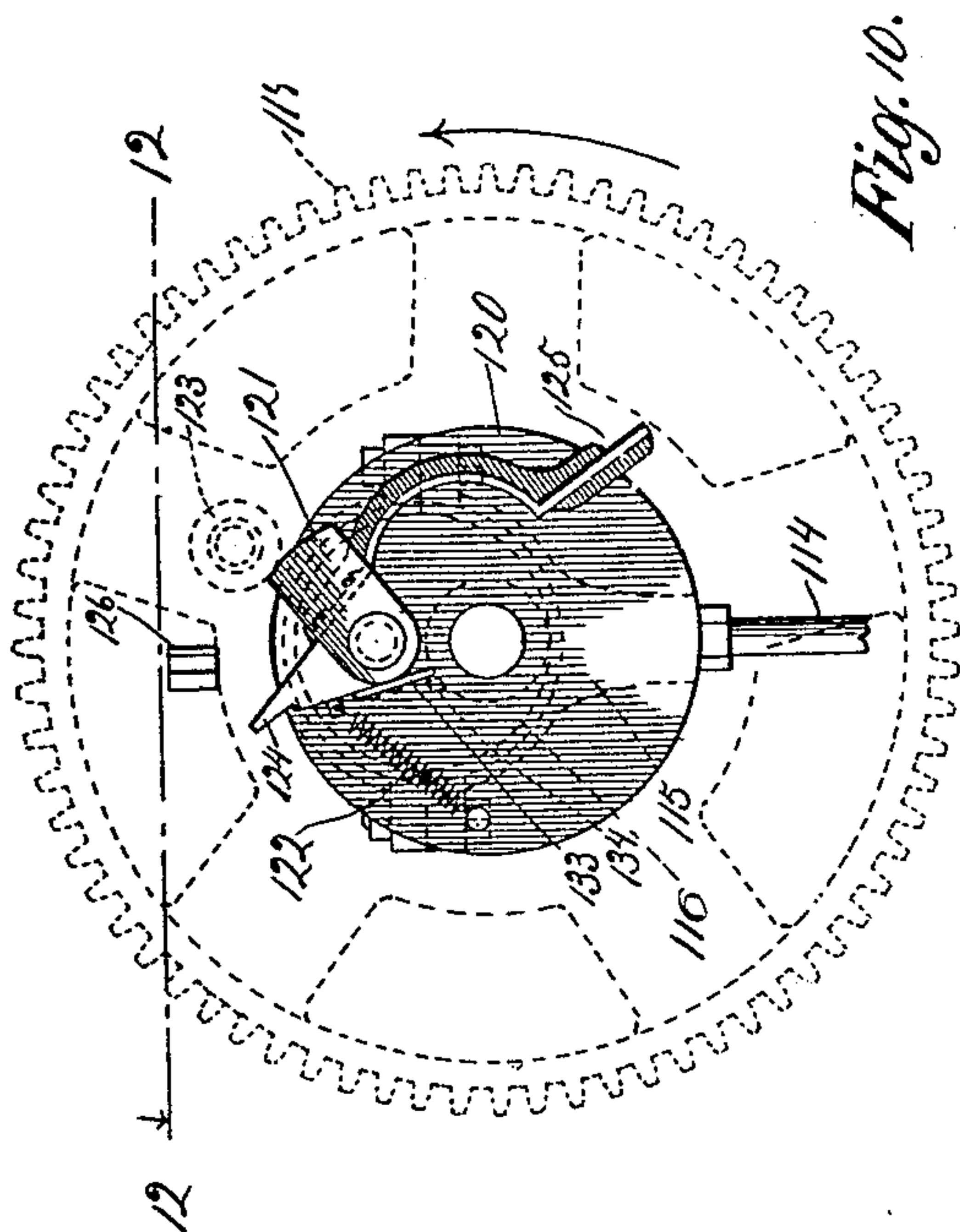


Fig. 10.

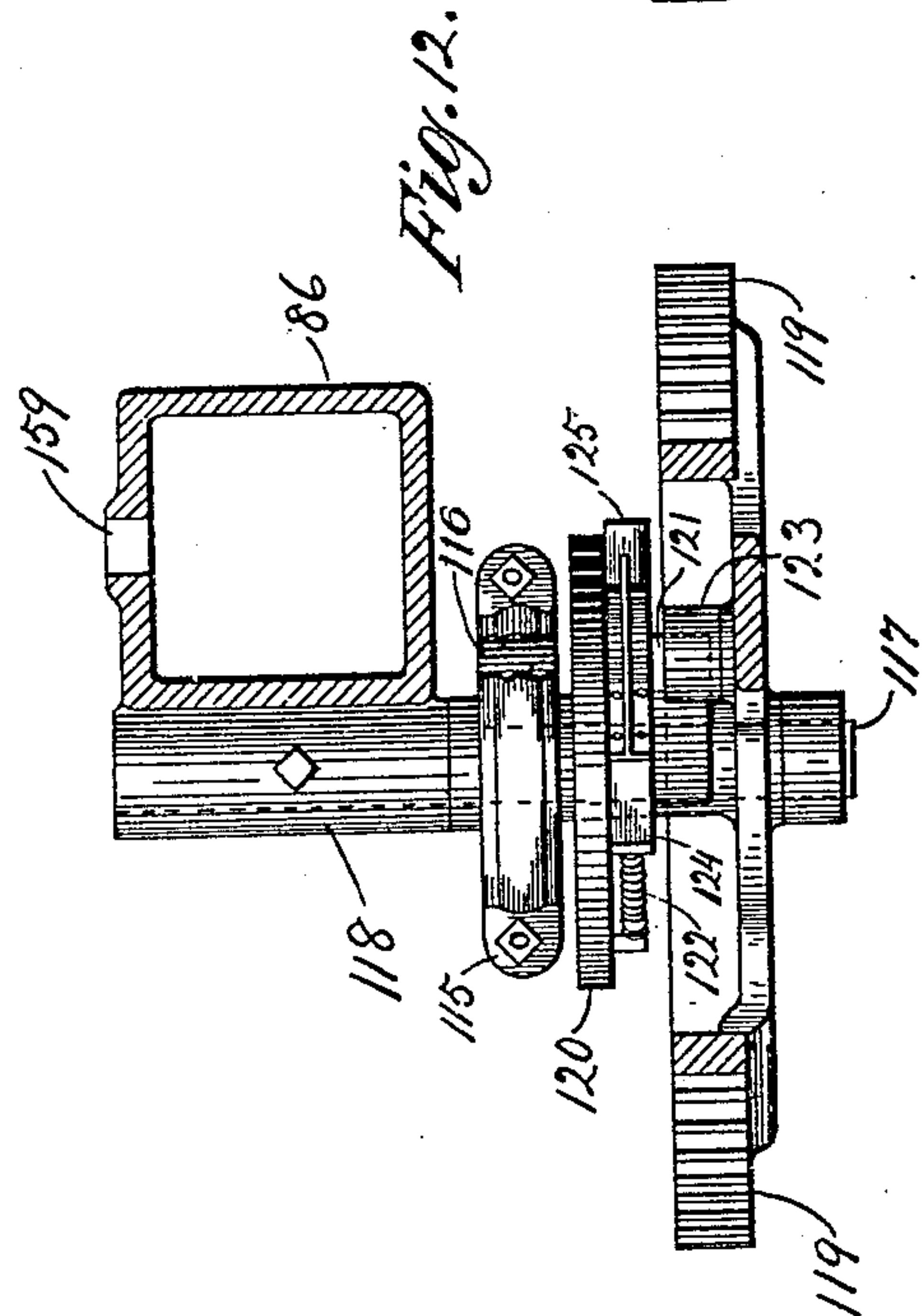


Fig. 12.

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UNITED STATES PATENT OFFICE.

WILLIAM E. ANDREÉ, OF CHICAGO, ILLINOIS, ASSIGNOR TO NELSON & KREUTER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

IRONING-MACHINE.

No. 846,890.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed May 27, 1905. Serial No. 262,562.

To all whom it may concern:

Be it known that I, WILLIAM E. ANDREÉ, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Ironing-Machines, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to ironing-machines of that class in which the garment is ironed upon a pressure-plate by means of an ironing-tool having a combined rocking and sliding movement over the plate.

The object of the invention is to provide a machine of this class which shall be effective and rapid in its operation, durable in construction, and automatic as to most of its movements.

The invention consists in improved means for supporting and actuating the ironing-tool and in certain other details of construction, all as hereinafter described, and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the device with some of the parts broken away to show the internal construction. Fig. 2 is a plan view, and Fig. 3 an end elevation, of the same. Fig. 4 is a sectional view on the line 4 4 of Fig. 1. Figs. 5 and 6 are sectional views on the lines 5 5 and 6 6, respectively, of Fig. 4. Fig. 7 is a detail elevation of the mechanism employed in the device, a part of the frame of the machine appearing in central vertical section. Fig. 8 is a sectional view on the line 8 8 of Fig. 1. Fig. 9 is a plan section on the line 9 9 of Fig. 7. Figs. 10 and 11 are detail end elevations of the machine, some of the parts being shown in dotted lines to more clearly bring out details of construction which would otherwise be concealed. Figs. 12 and 13 are sectional views on the lines 12 12 of Fig. 10 and 13 13 of Fig. 11, respectively; and Fig. 14 is a sectional detail of one of the supporting-columns and shows a modified form of mechanism for adjustably supporting one end of the pressure-plate-actuating lever.

That form of the device which is illustrated in the drawings is particularly adapted for ironing and polishing shirt-bosoms. There is provided a substantial framework, which includes a floor-plate 84, columns 85 and 86, rising from either end of the floor-plate and

of chambered form to provide housings for some of the working parts of the device, and upper and lower cross members 87 and 88 connecting the columns. Upon the column 85 is formed a shoulder 89 and a cylindrical portion 90, adapted to receive and support a rotatable head 91, which includes a sleeve 91^a and a plurality of arms 92, extending radially from the sleeve and shown as three in number. Each of these arms carries a pressure-plate or ironing-board 93, which may be covered with absorbent material (not shown) and which will preferably be provided with means for stretching the garment to be ironed and securing it in place. This mechanism, however, being of ordinary construction is omitted from the drawings for the sake of clearness.

An ironing-tool, shown as taking the form of a plate 94, having, preferably, a convex working surface 94^a, is supported from the upper cross member 87, so as to be adapted to swing and to afford a yielding resistance to upward pressure by the following means:

A yoke 95 is pivotally secured to the cross member 87 and is adapted to loosely receive through its shank 95^a, Fig. 4, a bolt 96, to which is applied a nut 97, bearing upon the upper end of the yoke. The head of the bolt is pivotally attached to a lever-arm 98, which carries the ironing-plate 94, and a stout spring 99, coiled about the bolt, reacts between its head and the face of the yoke 95 to depress the plate. The pressure-plates 93 are intended to be brought beneath the ironing-plate 94 successively by manually rotating the head 91 and are adapted to be secured in a central position beneath the plate by means of a latch 100, pivotally secured to the cross member 88 of the frame and designed to engage the end of each of the arms 92 when in the desired position.

The latch is controlled by means of a treadle 101, pivotally secured to the frame of the machine near its forward end and operatively connected with the latch by means of a crank-arm 102 and rods 103 and 103^a, united by a bell-crank lever 104. A spring 105 reacts upon the treadle 101 to raise it and to normally maintain the latch 100 in the correct position to engage each of the arms 92 as they are swung into place. The forward edge of the latch is provided with an inclined face 100^a, so that it may be automatically forced

backward by the advancing arm to allow the same to enter the space between its prongs, Figs. 1 and 8.

The pressure-plates 93 straddle the arms 5 92, as indicated at 106, so as to be vertically movable thereon, and are adapted to be raised against the face of the ironing-tool 94 by means of a plunger 107, sliding in the cross member 88 of the frame of the machine 10 and carrying upon its upper end a rectangular chair 108 for engaging the base of the pressure-plates. The lower end of the plunger 107 enters a dash-pot 109, intended to cushion its downward movement. The 15 plunger is actuated by means of a lever-arm 110, pivotally supported at one end by means of a bolt 111, depending from the cross member 88, and engages the plunger between the stops 112 and 113.

20 The forward end of the lever 110 enters the chamber of the column 86 and is joined, by means of a rod 114, to the strap 115 of an eccentric 116, loosely mounted on a short shaft 117, secured in a suitable bracket 118, 25 formed on the side of the column. This eccentric is adapted to be intermittently rotated from a continuously-running gear 119, turning loosely on the same shaft, by the clutch mechanism illustrated in Figs. 10 and 12. 30

A plate 120 is formed integral with the eccentric 116 and has pivotally secured to its face a pawl-arm 121, which is yieldingly maintained by a spring 122 in the path of a 35 roller 123, carried by the gear 119. A pair of arms 124 125 extend laterally from the pawl 121 beyond the periphery of the plate 120, preferably at points substantially one hundred and eighty degrees apart, and are 40 adapted to be engaged by a stop 126 to swing the pawl-arm out of the path of the roller 123. The stop 126 is pivotally secured to the frame of the machine at 127 and is adapted to be moved out of engagement with 45 the arms 124 125 by means of a hand-lever 128, mounted near the forward end of the machine and connected with the stop by means of the crank-arm 129 and tension-rod 130.

50 A spring 131, coiled about the rod 130, reacts against a stud 132, secured to the frame of the machine, to advance the rod and lower the stop 126. A shoulder-piece 133, secured to the pawl-arm 121, is provided to engage a 55 stud 134, rising from the hub of the gear 119, when the pawl 121 is engaged by the roller 123 to prevent the eccentric from turning in advance of the gear.

The lever-arm 98 and the ironing-tool 94 are 60 adapted to be swung and to be reciprocated by the following-described means: One end of the arm extends within the chamber of the column 85 and carries a pitman 135, reaching down through the column. A pin-rack 136 is 65 formed upon the lower end of this pitman and

is designed to be engaged by a pinion 137, with which it is held in contact by means of suitable guards 138 139, adjustably secured to the frame of the machine by means of bolts 140, passing through slotted apertures 70 141. A pair of curved members 136^a and 136^b are secured to the pitman 135 at the ends of the rack to guide the rack to the other side of the gear at either end of the stroke by engaging the points of its teeth. 75 The shaft carrying the pinion 137 is journaled in the wall of the column 85 and is operatively connected by bevel-gears 142 and 143 with a counter-shaft 144, extending to the opposite 80 end of the machine and journaled in suitable brackets 145 146, formed upon the columns 85 and 86, respectively. This counter-shaft is intermittently driven from a gear 147, turning loosely on its outer end, by a clutch 85 mechanism analogous to that employed for driving the eccentric 116 and most clearly shown in Figs. 11 and 13.

A plate or disk 148 is rigidly mounted on the shaft and has pivotally secured to its face a pawl-arm 149, adapted to be yieldingly 90 advanced by a spring 150 to such a position that it may be engaged by any one of a plurality of rollers 151, (of which three are shown,) carried by the gear 147. An arm 152 is secured to the pawl 149 and projects 95 beyond the periphery of the disk 148, as at 153, preferably at a plurality of points, shown as four in number, equally spaced about the circumference of the disk. A stop 154, adapted to be moved into the path of this 100 arm, but normally held in a retracted position by a spring 156, is carried by a rocker-shaft 155, journaled in the frame of the machine. The rocker-shaft projects into the chamber 105 of the column 86, and upon its inner end there is provided a forked member 157 for slidably engaging a shipper-rod 158, depending from the end of the lever-arm 98, which extends from the ironing-plate 94 through the wall of the column at 159. At the lower 110 end of the shipper-rod 158 is formed a T 160, the cross-arm of which will engage a shoulder 161 of the forked member 157 to turn the rocker-shaft 155 at the end of the upstroke of the rod when the latter is swung to the 115 position illustrated in Fig. 7.

An arm 162, pivoted to the interior wall of the column 86 at 163, is provided to swing the shipper-rod 158 and is actuated from the lever-arm 110. About midway of its length 120 the arm 162 carries a ring 164, Fig. 9, for receiving and guiding the shipper-rod, and at the lower end of the arm is an oblique slot 165, which receives a stud 166, projecting from the lever 110, the slot being so inclined 125 that the raising and lowering of the lever swings the arm. A strap 171 is secured to the pawl-arm 149 and extends inwardly therefrom for engaging a lug 172, of which three are shown, formed upon the hub of the 130

gear 147 to prevent the shaft 144 from turning in advance of the gear.

The pivot-bolt 167, joining the lever-arm 98 and pitman 135, is extended at one side through the wall of the column 85 and travels in a slotted aperture 168, so as to guide the swinging of the lever-arm 98. The slot 168 may be so formed that by engagement with its walls the pivot-bolt 167 is guided by a cam action to impart a longitudinal movement to the lever-arm, which then gives a sliding movement to the ironing-tool 94 over the garment. Preferably the curvature of the slot is such that the amount of sliding produced is very small, and a part of the wall of the column about the slot takes the form of a plate 169, removably secured in position by bolts 170 and which may be replaced by others having slots of different form, as desired.

A driving-gear 173 is journaled at the rear of the machine on a stud 174, projecting from the column 86, and has formed integral with it a belt-pulley 175. This gear meshes directly with the gear 147 and with the gear 119 through the medium of an idle gear 176, which turns on a stud 177, secured in the wall of the column.

The operation of the device is as follows: Power is applied by means of a belt to the pulley 175, and this pulley, together with the gears 119, 176, 173, and 147, are continuously rotated. An attendant stands at the forward end of the machine in a convenient position for operating the treadle 101 and hand-lever 128 and for manually rotating the head 91. After each operation the plunger 107 is lowered out of engagement with the pressure-plate 93, and it will be readily understood from an inspection of Fig. 10 that for this position of the plunger the eccentric 116 will be down and the arm 125 will be engaged by the stop 126. When a garment to be ironed has been properly adjusted upon one of the pressure-plates 93, preferably while such plate is in the position indicated by A of Fig. 2, the rotatable head 91 will be released by depressing the treadle 101, controlling the latch 100, and advanced until the pressure-plate carrying the garment is brought into position beneath the ironing-tool 94 and the corresponding arm 92 is engaged by the latch. The machine may now be set in motion to raise the pressure-plate, so that the ironing-tool will bear upon the garment, by operating the hand-lever 128 to raise the stop 126, Fig. 10. This will release the arm 125, so that the spring 122 may advance the pawl 121 into the path of the roller 123, and the plate 120 and eccentric 116 will then be driven by the gear 119 to raise the lever-arm 110 and plunger 107. Preferably the hand-lever 128 will be released immediately, so that the stop 126 may be returned, by the action of the spring 131, into position to be engaged by the arm

124 to release the pawl 121 when the eccentric 116 has been turned through a half-revolution.

The mechanism for actuating the ironing-tool 94 is automatically controlled by the movement of the pressure-plate in the following manner: The raising of the lever-arm 110 will swing the arm 162 to the left, as viewed in Fig. 7, and move the shipper-rod 158 so as to release the rocker-shaft 155, which will then be rotated by the spring 156 to raise the stop 154 out of the path of the points 153 of the arm 152. When this has been effected, the spring 150, Fig. 11, will swing the pawl 149 into the path of the rollers 151, and the counter-shaft 144 and pinion 137 will be driven by the gear 147 to reciprocate the pitman 135 and actuate the ironing-tool 94, the parts being so proportioned that the ironing-tool begins to operate at the end of the upstroke of the lever 110.

The operation may be continued as long as desired and is finally interrupted by again operating the hand-lever 128 to raise the stop 126. This will permit the eccentric 116 to be driven by the gear 119 to lower the lever-arm 110 and the plunger 107. Its movement will be arrested at the end of a half-revolution if the hand-lever 128 is immediately released by the engagement of the arm 125 with the stop 126. The lowering of the lever-arm 110 swings the arm 162 and the shipper-rod 158 to the position shown in Fig. 7, so that when the shipper-rod reaches the limit of its upstroke the cross-arm 160 on its lower end will engage the shoulder 161 of the forked member 157 to turn the rocker-shaft 155 and bring the stop 154 into the path of the arm 152. The engagement of any one of the projections 153 of this arm with the stop 154 will swing the pawl 149 out of the path of the rollers 151 of the driving-gear 147 and arrest the movement of the counter-shaft 144 and the ironing-tool 94. The rotatable head 91 will now be released by operating the treadle 101, and the pressure-plate 93 will be swung from beneath the ironing-tool by rotating the head. The finished garment may then be stripped from the plate, the operation of the machine being facilitated if this be done by a second attendant while the pressure-plate occupies the position indicated by B, Fig. 2.

The machine herein shown and described while having the advantages of a vertically-movable ironing-table and an oscillating ironing-plate cooperating therewith possesses also the further advantage of having the ironing-plate out of action as the table is raised into engagement with it with automatic means for setting the plate in motion as soon as the table is raised.

The pressure exerted between the ironing-boards 93 and the ironing-tool 94 may be regulated by adjusting a nut 178, supporting

the bolt 111, and thereby shifting the position of the lever-arm 110. In Fig. 14 is shown a modified means of accomplishing this result. The lever-arm 110 is continued through the column 85, being offset at 179 and 180 in order to clear the rack 136 and driving-pinion 137, and is pivotally supported at its farther end in a yoke 181, mounted on a post 182, rising from the floor-plate 84 of the machine. This post has a right and left threaded engagement with the yoke and the floor-plate, respectively, and is provided with a hand-wheel 183. It will be understood, therefore, that by turning this hand-wheel the height of the pivotal support of the lever 110 may be readily adjusted.

I claim as my invention—

1. In an ironing-machine, in combination, a vertically-movable ironing-table; a curved-faced ironing-plate cooperating with the table; power-actuated mechanism for raising and lowering the table; power-actuated mechanism for rocking the ironing-plate; and means controlled by the table-raising mechanism for starting and stopping the rocking mechanism.

2. In an ironing-machine, in combination, a vertically-movable ironing-table; a curved-faced ironing-plate cooperating with the table; power-actuated mechanism for raising and lowering the table; a normally disengaged clutch for connecting the table-moving mechanism with a source of power; power-actuated mechanism for rocking the ironing-plate; and means controlled by the table-raising mechanism for starting and stopping the rocking mechanism.

3. In an ironing-machine, in combination, a vertically-movable ironing-table; a curved-faced ironing-plate cooperating with the table; an eccentric for moving the table; a continuously-rotatable member; a clutch for connecting the eccentric with the rotatable member; a stop normally disengaging the clutch; a shipper-lever for moving the stop; power-actuated mechanism for rocking the ironing-plate; and means controlled by the table-raising mechanism for starting and stopping the rocking mechanism.

4. In an ironing-machine, in combination, a vertically-movable ironing-table; a curved-faced ironing-plate cooperating with the table; power-actuated mechanism for raising and lowering the table; power-actuated mechanism for rocking the ironing-plate; and means controlled by the table-raising mechanism and acting at the end of its up-stroke for starting the rocking mechanism.

5. In an ironing-machine, in combination, a vertically-movable ironing-table; mechanism for moving the table; a curved-faced ironing-plate; mechanism for rocking the ironing-plate; a power-rotated member; a spring-engaged clutch connecting such member with the rocking mechanism; a

spring-retracted trip for disengaging the clutch; and means actuated by the table-moving mechanism at the end of the up-stroke of the table for releasing the trip.

6. In an ironing-machine, in combination, a vertically-movable ironing-table; mechanism for moving the table; a curved-faced ironing-plate; mechanism for rocking the ironing-plate; a power-rotated member; a spring-engaged clutch connecting such member with the rocking mechanism; a spring-retracted trip for disengaging the clutch; a swinging arm carried by the ironing-plate; and means actuated by the table-actuating mechanism for throwing the arm out of engagement with the trip as the table rises.

7. In an ironing-machine, in combination, a curved-faced ironing-plate; a swinging support therefor, the plate being pivotally attached to the support; means for rocking the plate; and a cam for moving the plate longitudinally as it rocks.

8. In an ironing-machine, in combination, a curved-faced ironing-plate; a swinging support therefor; pivotal connection between the plate and support; means for rocking the plate; and a fixed cam engaged by the rocking means to move the plate longitudinally as it rocks.

9. In an ironing-machine, in combination, a yieldingly-supported convex-faced ironing-tool, power mechanism for imparting a rocking movement to the tool as it engages the work, and a vertically-movable ironing-board adapted to be raised to the working plane of the tool.

10. In a machine of the class described, the combination with an ironing-board, of an ironing-head adapted to be heated, having a convex face, means for supporting said head, and power-actuated means for imparting a rocking motion to said head.

11. In a machine of the class described, the combination with an ironing-board, of a yieldingly-supported ironing-head adapted to be heated, having a convex face, and power-actuated means for imparting a rocking motion to said head.

12. In a machine of the class described, the combination with an ironing-board, of an ironing-head adapted to be heated, having a convex face, means for supporting said head, a spring acting to thrust the head toward the board, means for adjusting said spring, and power-actuated means for imparting a rocking motion to said head.

13. In an ironing-machine, an ironing-board, combined with a yieldingly-supported ironing-head adapted to be heated, having a convex face, and power-actuated means for rocking said head and for also moving it in a direction lengthwise the ironing-board.

14. In an ironing-machine, in combination, a rocking ironing-plate having a convex face, power-actuated means for rocking the iron-

ing-plate, a swinging arm, and an ironing-board carried by the arm, its face being parallel with the plane of oscillation of the arm, and a locking device for locking the arm in position beneath the ironing-plate.

15. In an ironing-machine, the combination with a rocking ironing-head having a convex face, power-actuated means for rocking it, and a pair of ironing-boards located in a plane beneath said head, arms carrying said ironing-boards projecting radially from a hub, a central support on which said hub is free to be oscillated, and a locking device on the machine-frame for locking either arm in position beneath the ironing-head.

16. In an ironing-machine, an ironing-board, combined with an ironing-plate adapt-

ed to be heated, having a convex face, and power-actuated means for rocking said plate, and means for separating the ironing-board and plate at the end of the stroke of the latter.

17. In an ironing-machine, an ironing-board, combined with an ironing-plate adapted to be heated, having a convex face, and power-actuated means for rocking said plate, and for moving it in a direction lengthwise the ironing-board, and means for separating the ironing-board and plate at the end of the stroke of the latter.

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