

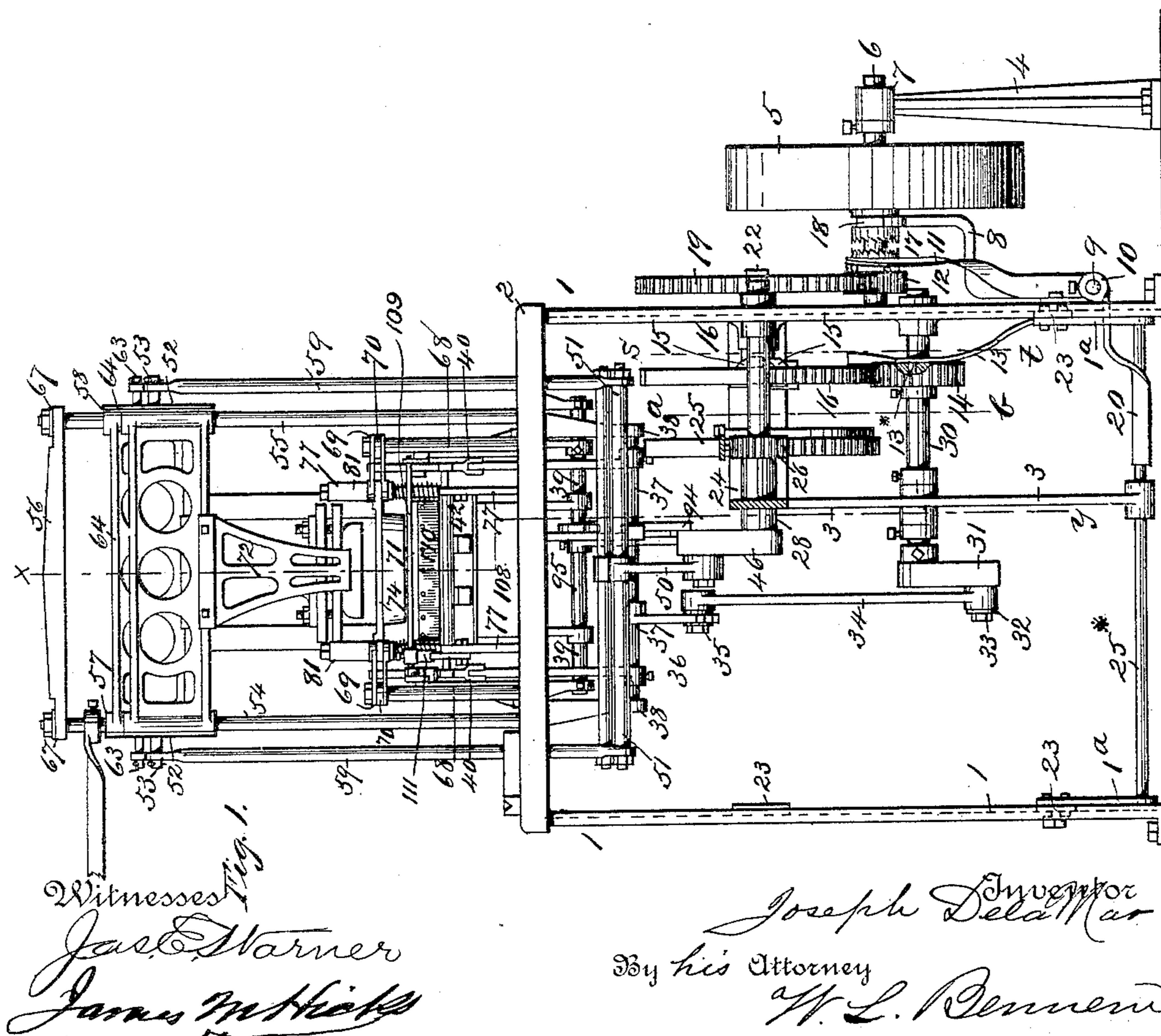
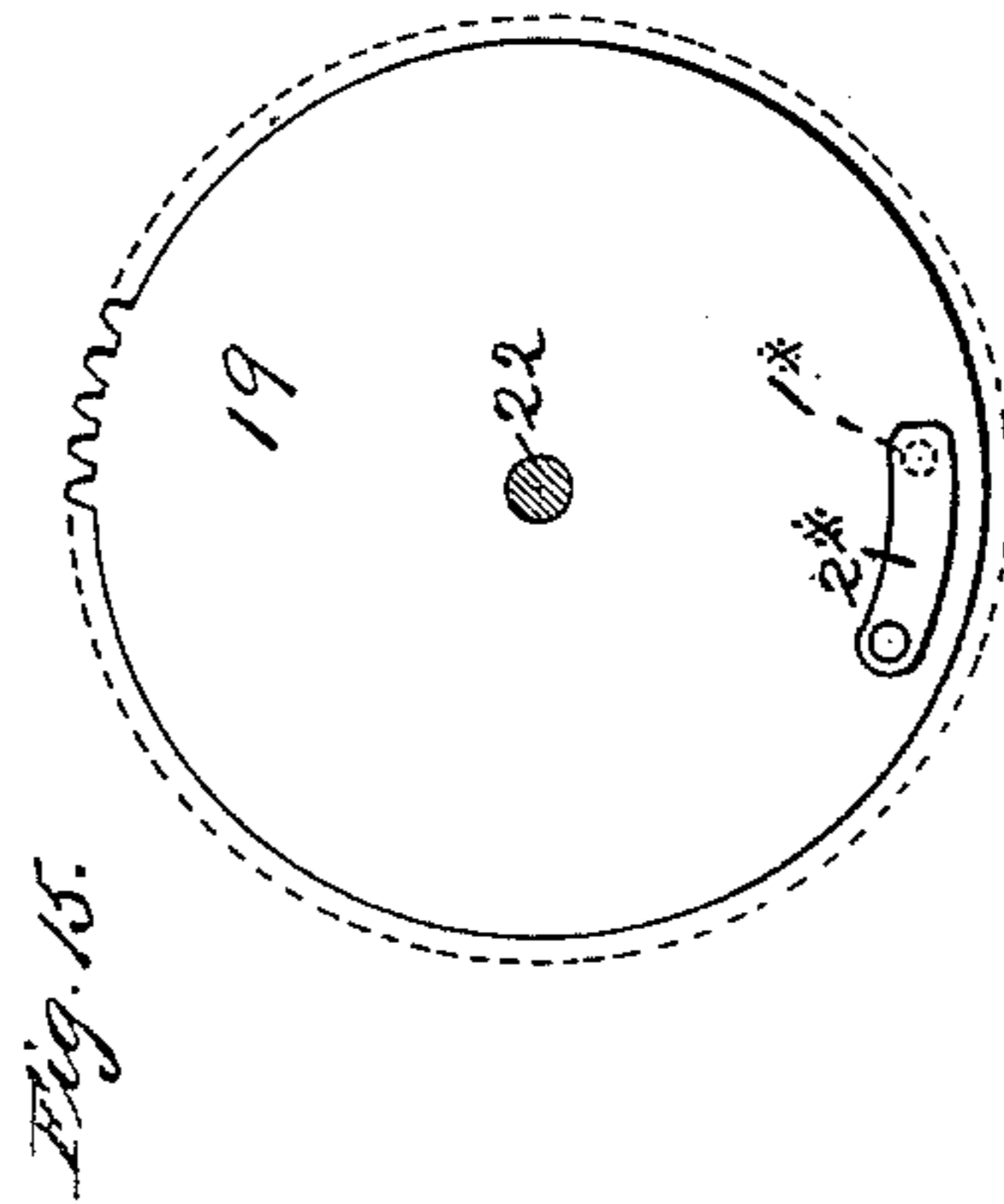
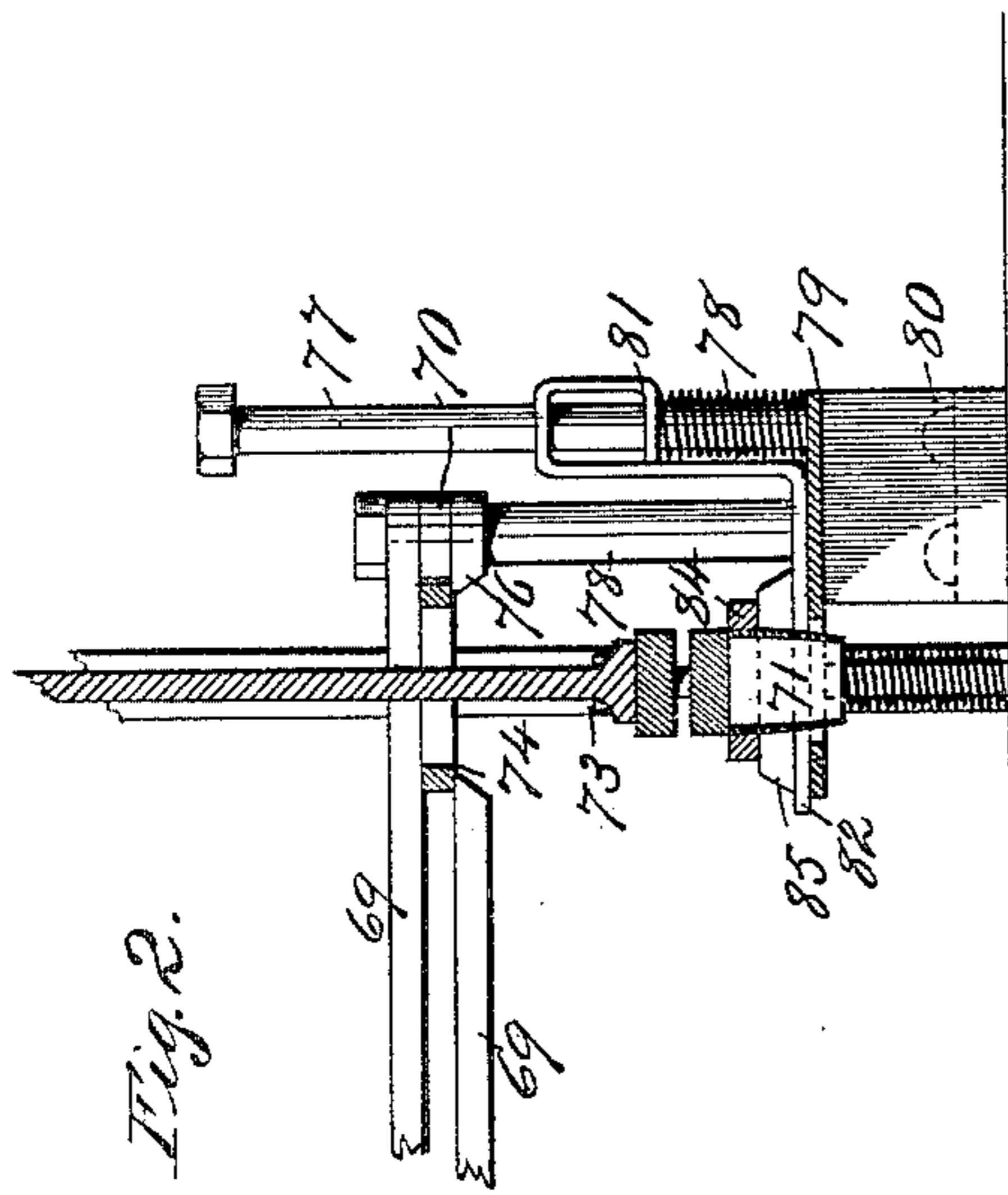
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9 Sheets—Sheet 1.

J. DELA MAR.
CIGAR BUNCHING MACHINE.

No. 461,072.

Patented Oct. 13, 1891.



Witnesses

Joseph Warner
James M. Hines

Joseph Dela Mar
By his Attorney
W. L. Bennett

(No Model.)

9 Sheets—Sheet 2.

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CIGAR BUNCHING MACHINE.

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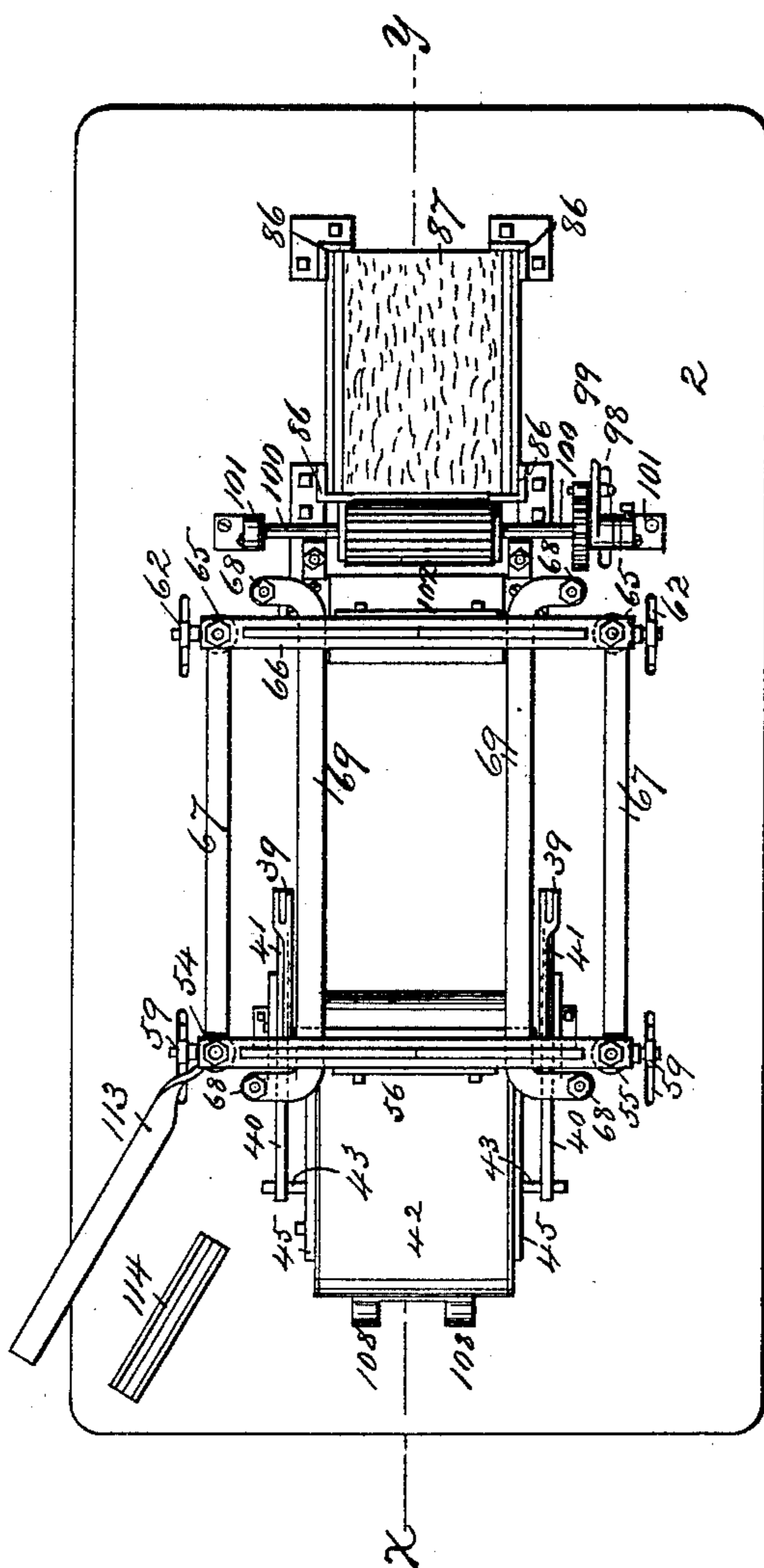


Fig. 3.

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(No Model.)

9 Sheets—Sheet 3.

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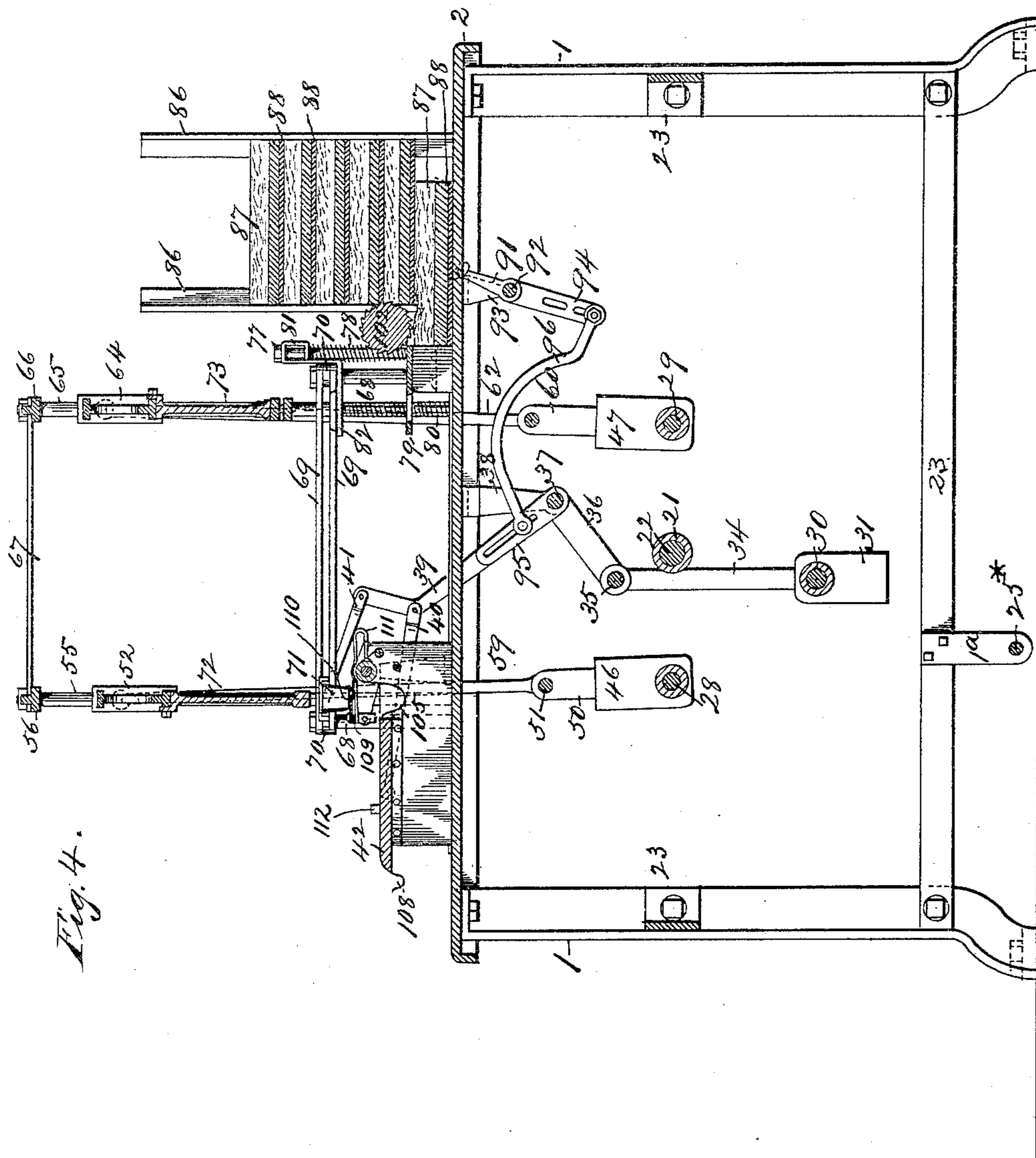


Fig. 4.

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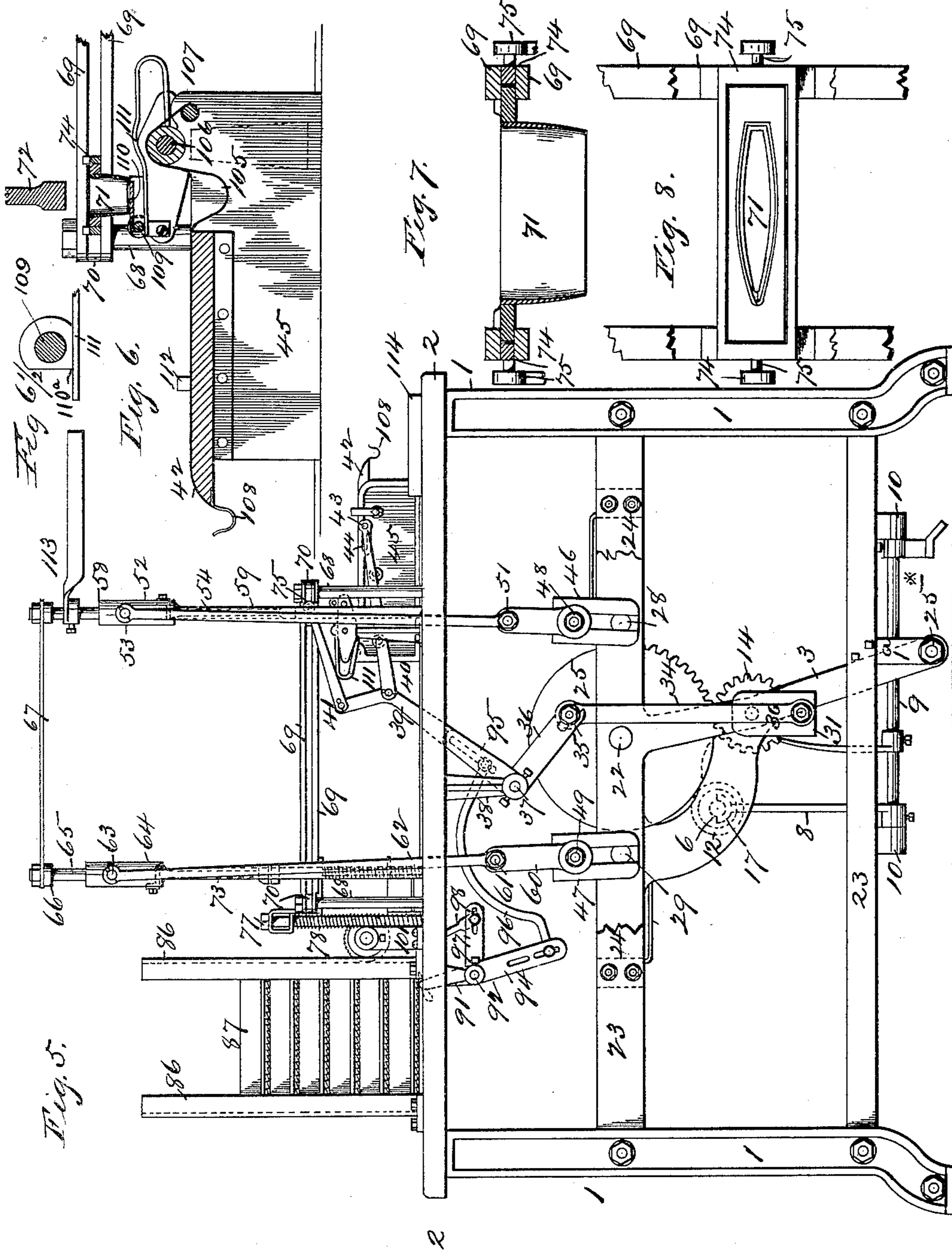
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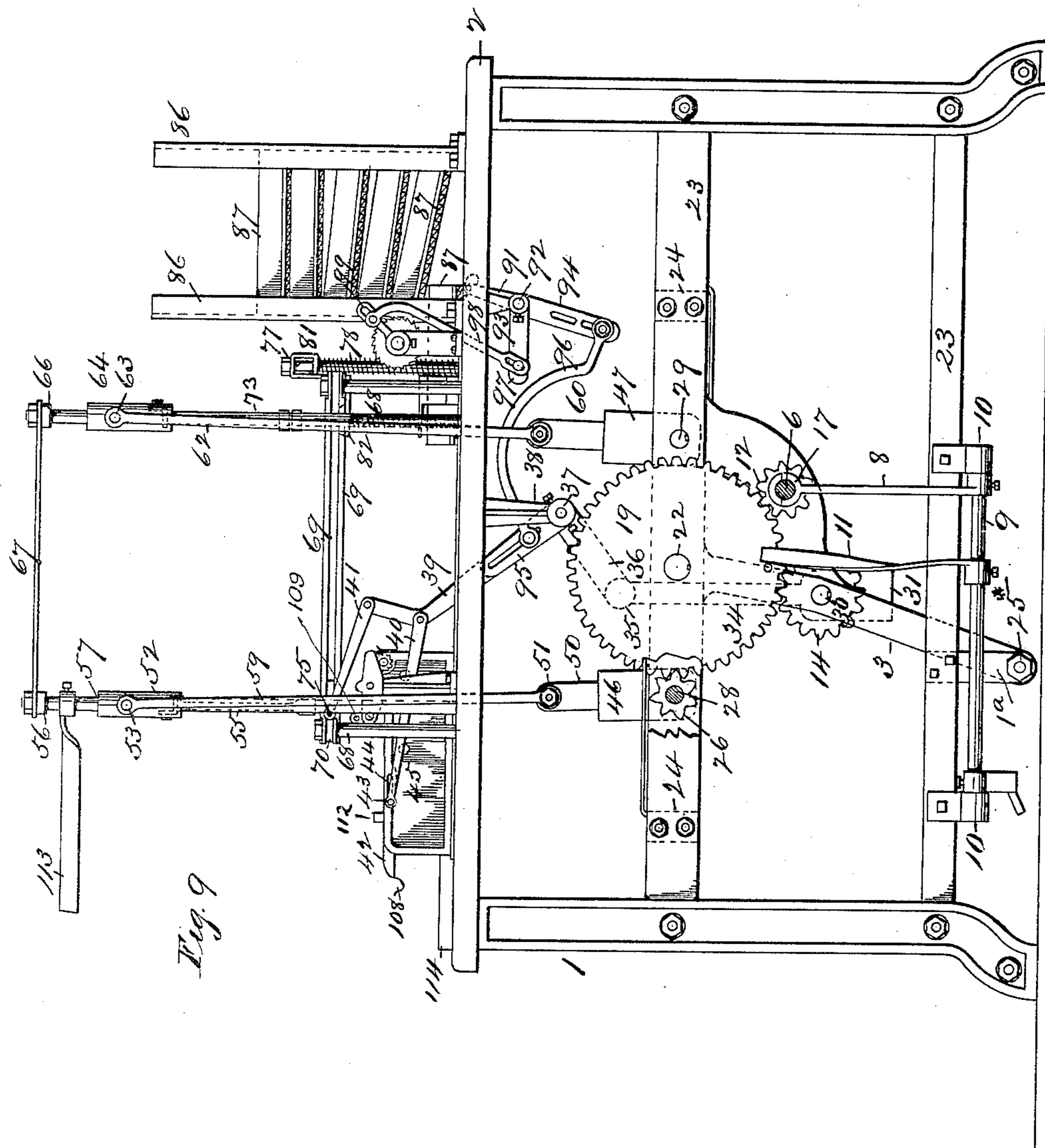
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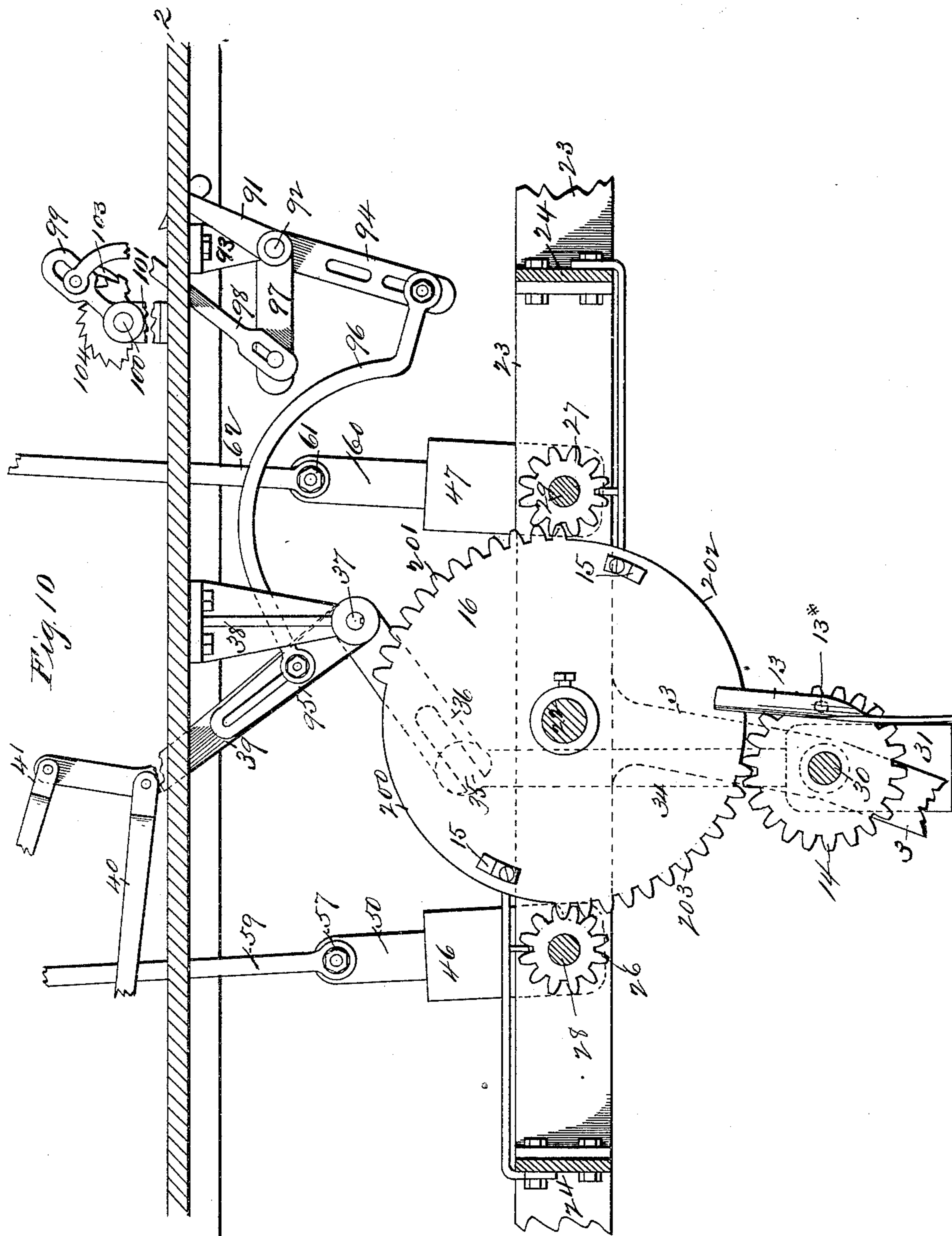
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J. DELA MAR.
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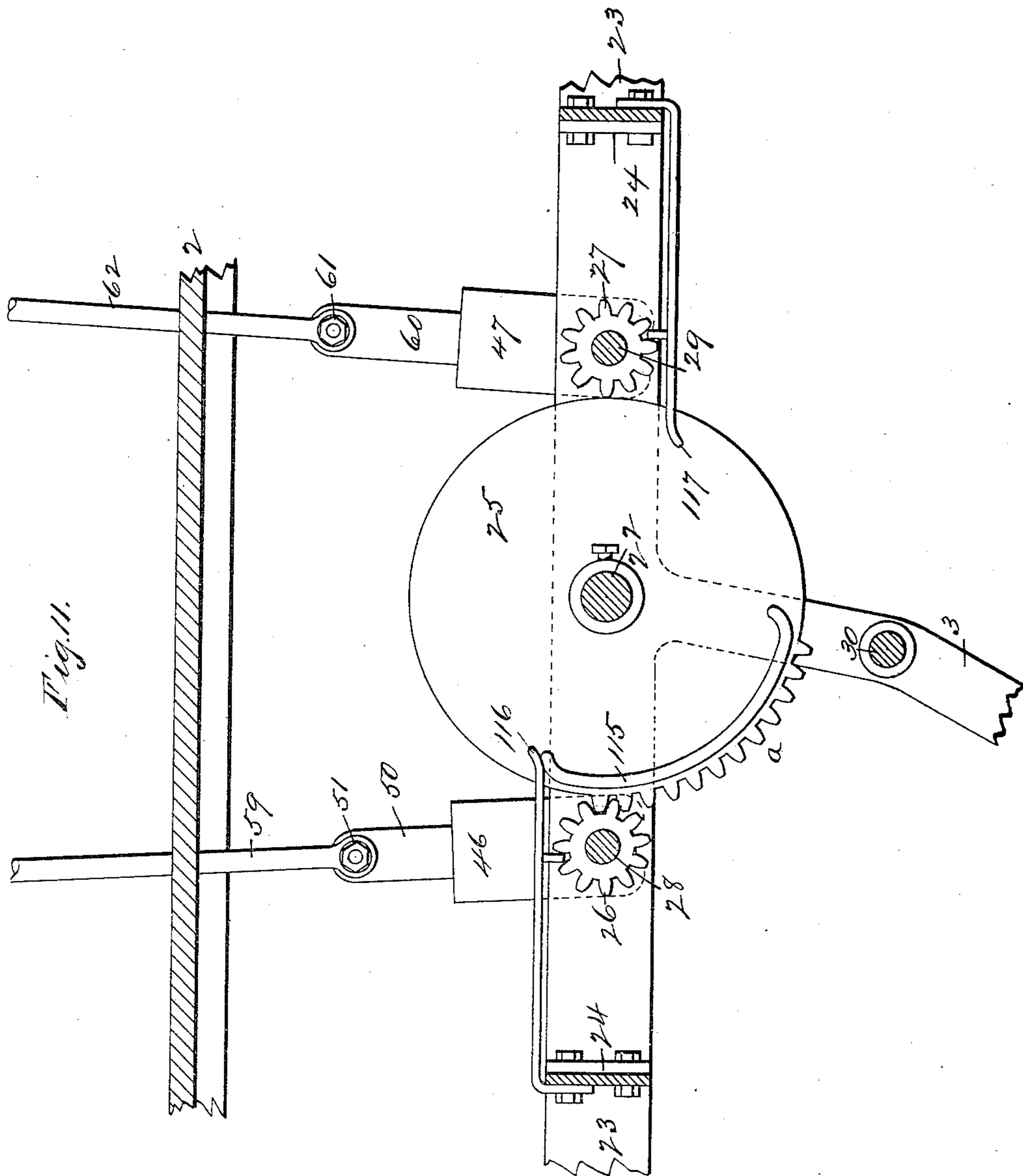
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J. DELA MAR.
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Patented Oct. 13, 1891.



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9 Sheets—Sheet 8.

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CIGAR BUNCHING MACHINE.

No. 461,072.

Patented Oct. 13, 1891.

Fig. 12.

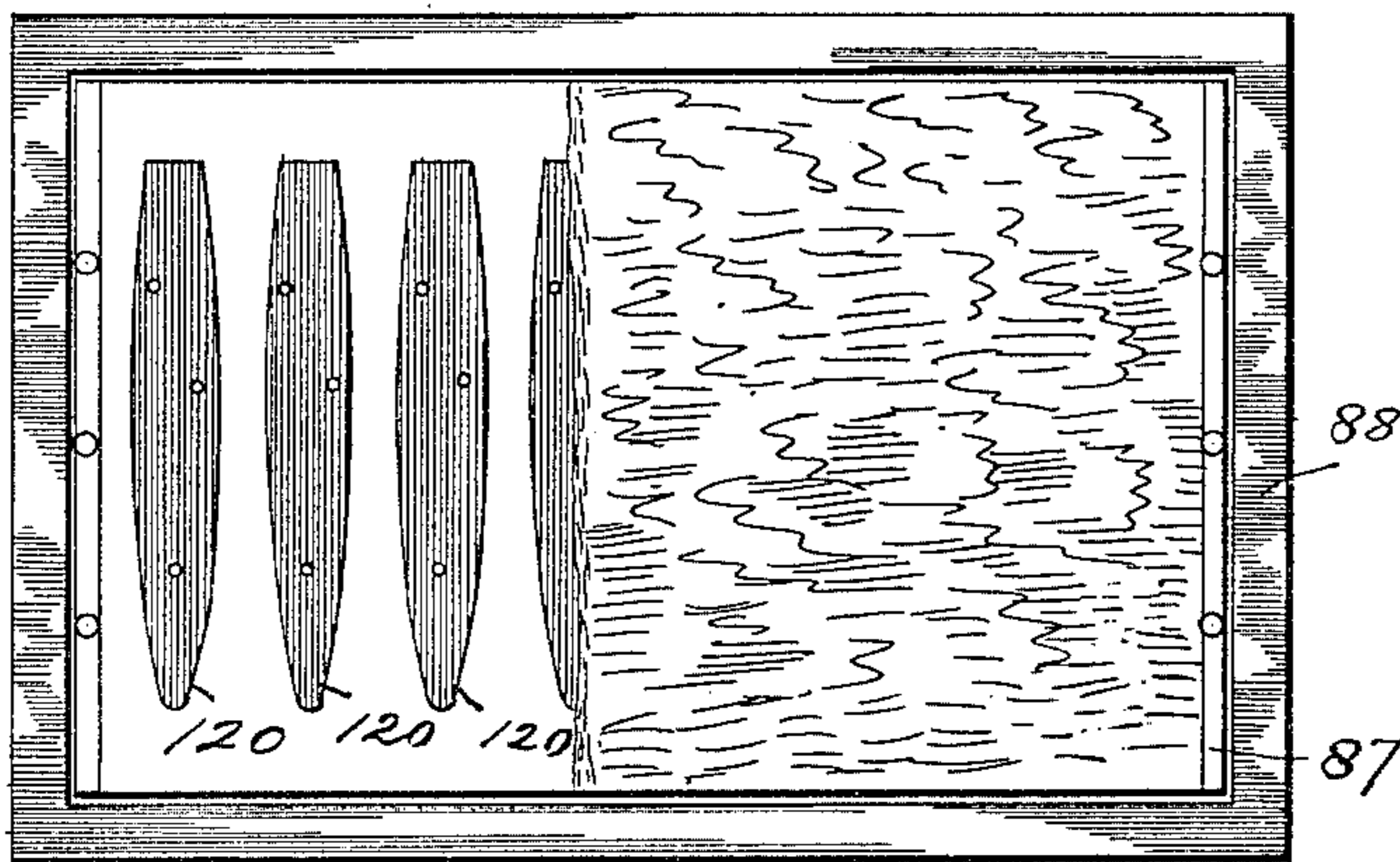


Fig. 13.

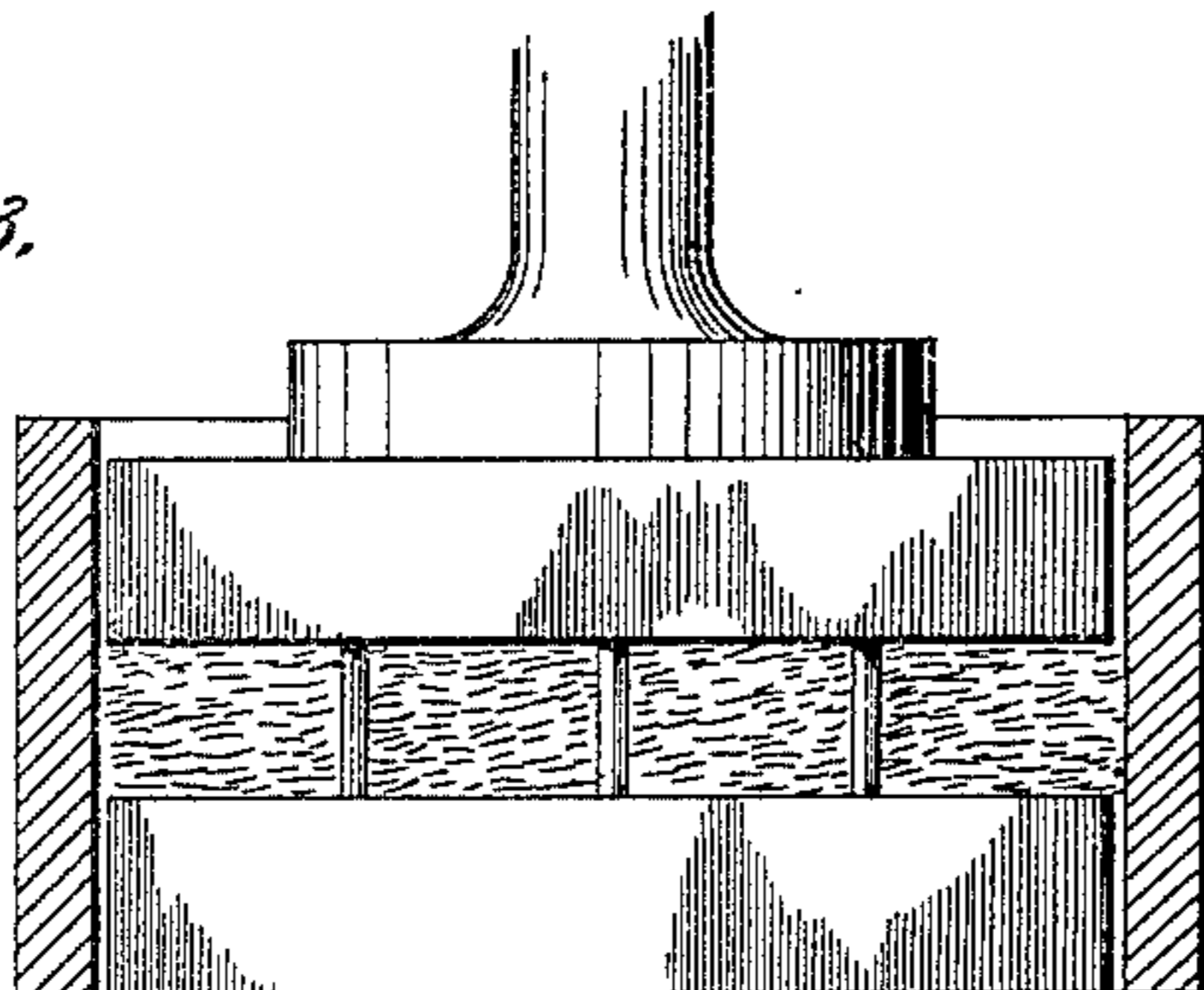
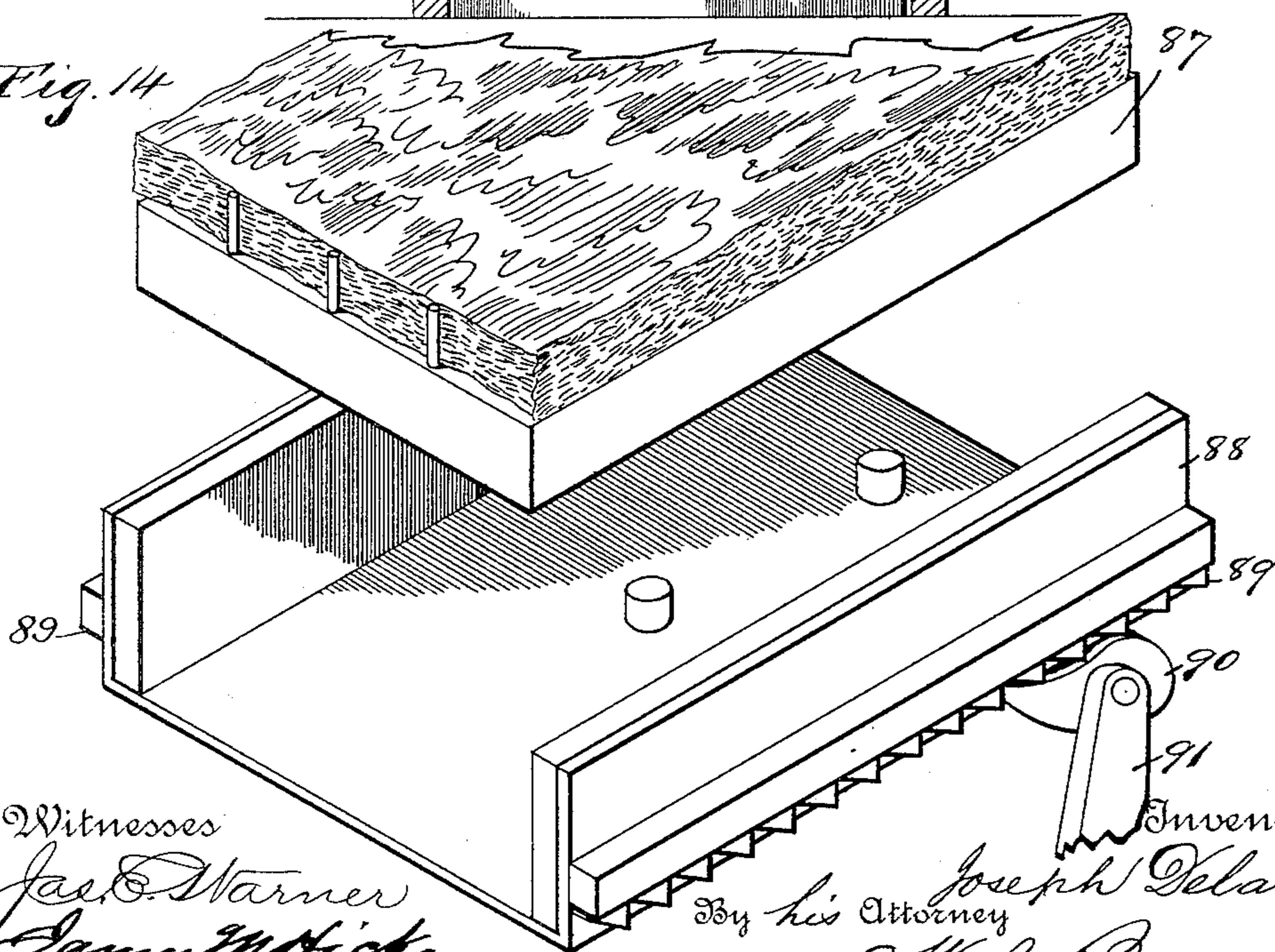


Fig. 14



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Fig. 17

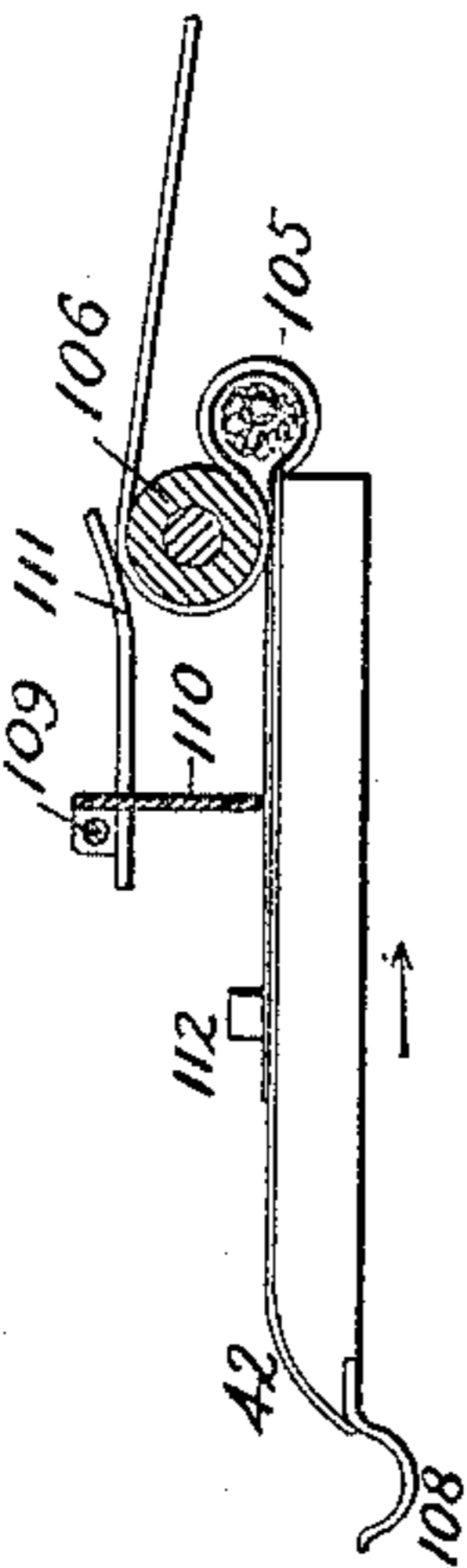
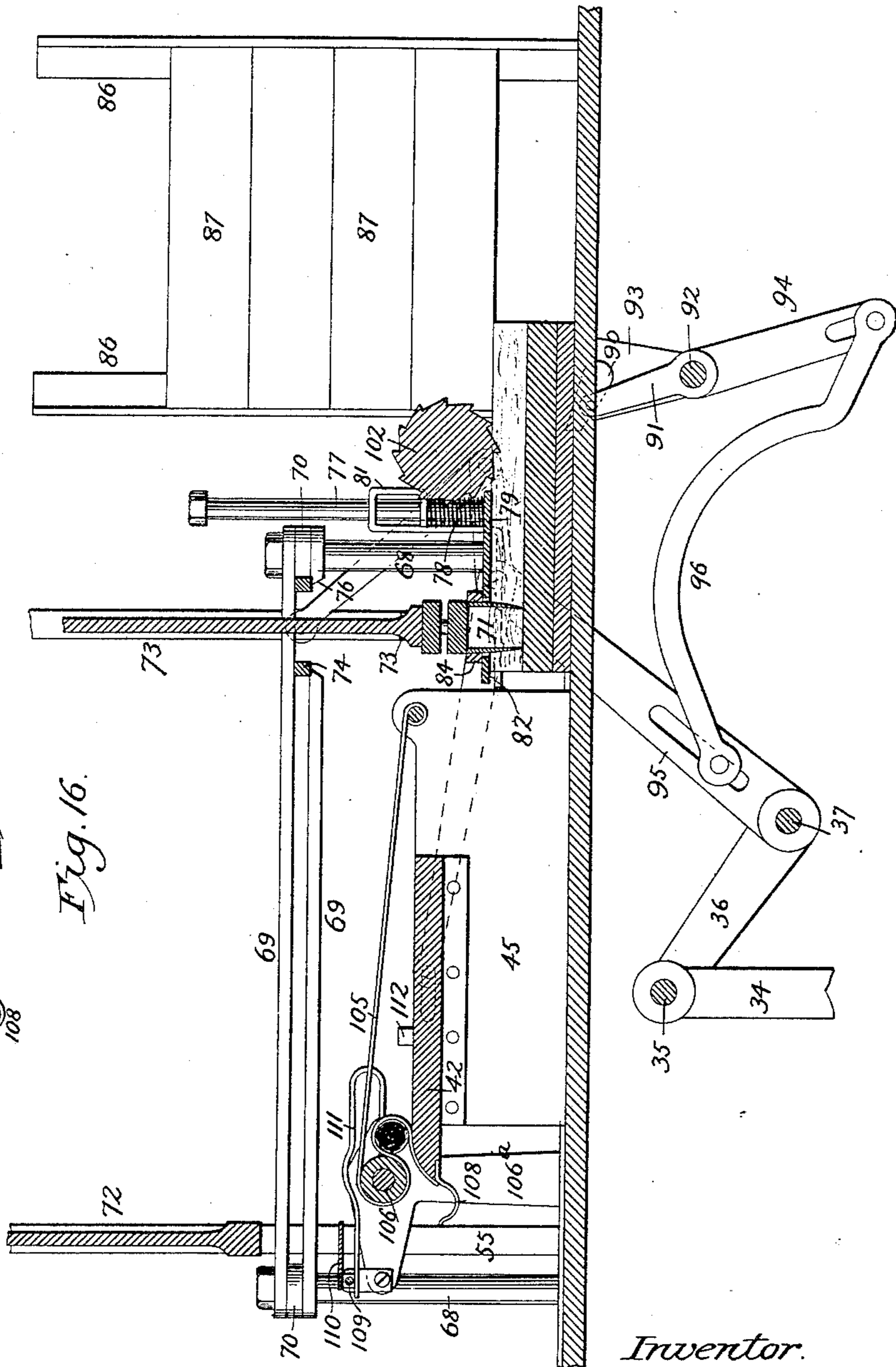


Fig. 16.



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UNITED STATES PATENT OFFICE.

JOSEPH DELA MAR, OF POUGHKEEPSIE, ASSIGNOR OF ONE-HALF TO FREDERICK BOSTWICK, OF PINE PLAINS, NEW YORK.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 461,072, dated October 13, 1891.

Application filed June 21, 1890. Serial No. 356,253. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DELA MAR, a citizen of the United States of America, residing at Poughkeepsie, county of Dutchess, and State of New York, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

In Letters Patent of the United States No. 410,959, granted me September 10, 1889, I have shown a cigar-bunching machine in which a rolling-table is supported on a carriage or frame which is reciprocated horizontally by treadle mechanism, and a plunger operated by separate treadle mechanism is reciprocated vertically to discharge tobacco from a cigar-shaped mold onto the apron carried by the rolling-table. The mold is filled by hand, and at each operation of the machine the attendant supplies a new mold.

According to my present invention I operate the entire machine by continuously-driven-power mechanism, which actuates devices that automatically supply tobacco as fast as needed to the cutting-die, which takes up a sufficient quantity of tobacco, carries it to a vertically-reciprocating plunger, which discharges the tobacco upon the apron carried by the reciprocating rolling-table, where it is converted into a bunch ready for the cigar-molds.

By my improvements the output of the machine is largely increased, the machine is rendered more reliable in operation, and requires less care from the attendant.

The general organization of the apparatus and the details of construction will be hereinafter set forth.

The accompanying drawings represent so much of a cigar-bunching machine embodying all my improvements in the best way now known to me as is necessary to illustrate the subject-matter herein claimed. Some of these improvements, however, may be used without the others and in machines differing in details of construction from that herein shown.

As my invention contemplates the application of these improvements to the most highly-organized machines of the present day, I do not confine myself to the details of construction and organization herein shown, but when

specifying a particular construction or organization intend to include well-known equivalents therefor.

Figure 1 of the accompanying drawings is a front elevation of a cigar-bunching machine embodying my improvements; Fig. 2, a detail view on an enlarged scale, showing particularly the cutting-die and the apparatus connected therewith; Fig. 3, a plan view of the machine; Fig. 4, a vertical section on the line xy of Fig. 1; Fig. 5, an elevation of the machine on that side opposite the side on which the driving-pulley is located; Fig. 6, a detail view, on an enlarged scale, of the cutting-die, rolling-table, and devices connected therewith; Fig. 6½, a detail view, on an enlarged scale, of a hub forming part of the devices connected with the cutting-die and the rolling-table; Fig. 7, a detail view showing, in section and on an enlarged scale, the cutting-die and its supports; Fig. 8, a plan view of the same; Fig. 9, a side elevation of the machine with the driving-pulley removed; Fig. 10, an enlarged view in section on the line st of Fig. 1; Fig. 11, an enlarged view in section on the line ab of Fig. 1; Fig. 12, a plan view of a tobacco-tray; Fig. 13, a view in section of a tobacco-tray and a punch for forcing the tobacco into the tray; Fig. 14, a perspective view of a tobacco-tray filled and pressed, and also of a frame or carriage in which the tray is supported. Fig. 15 is a side view of one of the operating gear-wheels. Fig. 16 is a longitudinal vertical section of the upper part of the machine, showing the mechanism in a different position from that shown in Fig. 4; and Fig. 17 is a detail view of the rolling-table.

The main supporting-frame of the machine is formed of uprights 1, supporting a table 2. The uprights are braced by horizontal side pieces 23, near their lower ends and also slightly above their middle portions. A shaft 25* is supported in hangers 1^a, secured to the lower cross-pieces 23. A supplemental frame 3 is mounted on the cross-shaft 25*, and at its upper end it is extended transversely to the shaft 25* and provided with arms 24, which are bolted to one of the upper cross-pieces 23. The main driving-shaft 6 has its inner bearing in the main frame and its outer

bearing in a journal-box 7 on a pillow-block 4. The shaft 6 carries a driving-pulley 5, a pinion 12, and a clutch mechanism 17. The clutch may be of any suitable construction adapted to operatively connect the driving-pulley with the pinion.

As shown in Fig. 1, the pinion and pulley are disconnected, and the driving-pulley may be revolved without operating the pinion. A clutch-operating arm 8 is bifurcated at its upper end and engages with a groove 18 in one member of the clutch. At its lower end the arm 8 is secured to a shaft 9, mounted in bearings or brackets 10, secured to the main frame. The shaft 9 carries a treadle-lever 20, by the depression of which the clutch may be operated to connect the pinion 12 with the driving-pulley. The pinion 12 meshes with a gear-wheel 19, secured to a shaft 22, having bearings 21 in the main frame at one end and at its inner end in the supplemental frame 3. The shaft 22 carries two mutilated gear-wheels 16 and 25. The wheel 16, as shown particularly in Fig. 10, is provided with two sets of teeth 201 and 203. Each set has an equal number of teeth, and between the two sets are blank spaces 200 and 202. These teeth gear intermittently with a pinion 14, mounted on a shaft 30, having bearings at one end in the main frame and at the opposite or inner end in the supplemental frame 3.

The wheel 25 (shown clearly in Fig. 11) has a single row of teeth α , which during each revolution of the shaft 22 gears intermittently with the pinions 26 and 27, located on opposite sides of the shaft 22 and secured, respectively, to shafts 28 and 29. As the main driving-wheel revolves and the connection between it and the pinion 12 is established, motion is communicated to gear 19 and its shaft 22, and the pinion 14, its shaft 30, and the pinions 26 and 27 and their shafts are revolved at the proper times. The gear 19 is provided with a lug 1*, provided with a stiff spring 2*. The lug is adapted to engage with a bar 11, secured to the shaft 9, which carries the treadle 20 and clutch-operating arm 8. As long as the foot of the operator is on the treadle 20 the clutch is locked and the gear-wheel 19 revolves, the lug 1* yields, and passes by the end of the arm 11; but when the operator's foot is removed the spring-lug 1* is sufficiently rigid to force the upper end of the arm 11 outwardly toward the driving-pulley, so as to turn the shaft 9, and by means of the arm 8 unlock the clutch.

A spring-bar 13, secured to the main frame, is provided at its upper end with a pin 13*, which enters a recess in the pinion 14 and holds it steady when not actuated by the driving mechanism, as will be hereinafter set forth. The pinions 26 and 27 are held stationary, when not positively revolved by the gear-wheel 25, by spring-dogs 116 117, as shown in Fig. 11. At the proper time these dogs are raised out of engagement with the pinions by means of a guide-rail 115, properly located

on the wheel 25. Lugs 15, secured to opposite sides of the gear-wheel 16, intermittently engage with the spring-arm 13 to force it back out of engagement with the pinion 14, so that the pinion may be revolved when positively actuated by the teeth 201 or 203.

A crank-arm 31 is secured by a set-screw to the shaft 30, and a crank-pin 33 is adjustably secured to the arm 31. The lower end 32 of a pitman-rod 34 connects with the crank-pin 33 and the upper end of the rod 34 is secured by a pivot-pin 35 to one end of an arm 36, secured at its opposite end to a cross-shaft 37, supported at opposite ends in hangers 38, depending from the table 2. Arms 39 are secured at their lower ends to the shaft 37 and at their upper ends are pivotally connected with small pitman-rods 40 and 41, located on opposite sides of the rolling-table and its frame. The lower rods 40 are provided at their outer ends with inwardly-projecting pins 43, which enter slots 44 in the side frames 45 of the rolling-table 42, forming part of the bunching devices, and recesses or apertures in said table, so that in operation the table is moved a short distance horizontally before the side frames 45 are moved, and then the table and side arms are moved together, for a purpose hereinafter designated.

The arms 39 are extended a short distance above the pitmen 40, and to their extreme upper ends are connected the short pitman-rods 41, which at their opposite ends are connected with the die-carrying frame by a pivotal connection 75. The cutting-die 71 is approximately cigar shape in cross-section, as shown in plan in Fig. 8, and is provided at its lower end with a cutting-edge, and preferably the interior of the die gradually increases in width and length upwardly from the cutting-edge, so that when the die receives a charge of tobacco it will sustain the charge until positively forced out by a plunger. The die 71 is mounted in a frame 84, which in turn enters a frame 74, from which it is separated in the act of cutting. The die and its frames are normally supported in a horizontal guideway formed by parallel bars 69, mounted on uprights 68, rising from the table 2. Four uprights 69 are shown—two on each side of the machine—separated by plates 70, whereby an open guideway or slot parallel with table 2 is formed on each side of the machine just wide enough to permit the die-carrying frame to reciprocate back and forth smoothly and evenly. The distance between the two pairs of bars 69 is greater than the length of the die 71, which projects below them. At the feed end of the machine the lower guide-bars 69 are formed with removable sections 85, which are normally held in place in the recesses 76 by arms or shoes 82, which have extensions 81, mounted on upright bars 77 and on which they are free to slide. Springs 78 on these uprights beneath the extensions 81 normally hold the shoes 82 elevated, so as to support the sections 85 in

the recesses 76. As the shaft 30 is revolved and the arms 39 actuated, the rolling-table and its frame are reciprocated back and forth parallel with the table 2, and the die and its carrying-frame are simultaneously reciprocated back and forth in the guideways 69. Above the table is located the frame-work, carrying vertically-reciprocating plungers for operating the cutting-die at one end of the machine to charge it with tobacco and for discharging the tobacco from the die at the opposite end of the machine.

The plunger 73, which operates the cutting-die, is connected with a cross-head 64, connected at opposite ends with vertical guide-rods 65. At the top the guide-rods are connected and braced by a tie-rod 66. The plunger 72, which discharges the tobacco from the die, is connected to a cross-head 52, having end bearings 57 and 58, through which extend vertical guide-rods 54 and 55. The guide-rods 54 and 55 are connected and braced at their upper ends by a tie-rod 56. Tie-rods 67 connect the guide-rods 65 with the guide-rods 54 and 55. The plungers 72 and 73 are both operated from the shaft 22 through the shafts 28 and 29, carrying the pinions 26 and 27. The shaft 28 is provided with a crank-arm 46, in which a crank-pin 48 is adjustably secured, and to this crank-pin is connected a link 50, in turn connected to a cross-rod 51. The opposite ends of this rod are pivotally connected with upright pitman-rods 59, extending through slots in the table 2, and at their upper ends connected by means of pins 53 to the cross-head 52. As the shaft 28 is revolved, the cross-head is correspondingly reciprocated vertically. A crank-arm 47 on the shaft 29 carries an adjustable crank-pin 49, connected by a link 60 with a horizontal rod 61, which is connected at opposite ends with upright pitman-rods 62, extending through openings in the table 2, and at their upper ends connected by pins 63 with the cross-head 64, which carries the plunger 72. The plunger is reciprocated vertically as the shaft 29 is revolved.

The tobacco 87 is contained in trays, on the bottom of which are cigar-shaped strips of lead 120, or similar soft metal, to receive the cutting-edge of the die. Each tray is supported in a carrier-frame 88, which is formed with a rack 89, with which a pawl 90 engages to feed the tobacco-tray into position under the die. As shown, for instance, in Fig. 4, a number of trays filled with tobacco are arranged one above the other in a rack composed of vertical angle-irons 86, secured to the table 2 near the plunger 73, which operates the cutting-die. The pawl 90 engages with the rack 89 in the lower tray-carrier and moves it forward at the proper time step by step when actuated by the pawl-operating mechanism. Preferably two pawls 90 are employed, one on each side of the trays, and these pawls are connected to the upper ends of arms 91, secured to a cross-shaft 92, mounted

in hangers 93, secured to the table 2. Rods 94, projecting downwardly from the shaft 92, are connected at their lower ends with curved links 96, which are in turn connected at their opposite ends with the pitman 39. This connection is preferably by means of pins projecting through slots 95 in said pitman, so that an adjustable connection is afforded for regulating the feed. An arm 97, secured to the shaft 92, is connected at its outer end with a pitman 98, connected at its upper end with a pawl-carrying arm 99, supported on a shaft 100, which has its bearings in blocks 101. Shaft 100 carries a ratchet-wheel 104 and a corrugated or roughened feed-roll 102. As the arm 97 is rocked, the pawl-carrying arm 99 is correspondingly actuated and the pawl 103, engaging with the ratchet-wheel 104, turns the feed-roll step by step, and this roll, engaging with the upper surface of the tobacco in the lower tray, aids in feeding the tray of tobacco to the cutting-die. Without the use of such a feed-roll the tray might be advanced without carrying tobacco with it, as the weight of the upper trays might retain the tobacco beneath them while the lower tray is being advanced. The trays as they are fed forward pass under a table 79, mounted on uprights 80, secured to the table 2. Said table 79 is provided with an opening through which the die 71 extends when operated by the plunger 73. The rolling-table 42 is mounted on side frames 45, in which it has a limited horizontally-reciprocating movement, and the table with the side frames is adapted to move back and forth on the table 2 in the usual way.

At its front end the table is provided with hooks 108 to receive the cigar-bunch when completed. The apron 105 is secured to the table at its front end and at its rear end is secured to a roller or bar 107, secured to the side frames 45. It also passes over a bunching-roller 106, mounted in standards 106^a, rising from the table 2. The construction and operation of the rolling-table and its apron are similar to that shown and described in my patent of September 10, 1889, above referred to.

Some parts of my present invention may obviously be used in connection with bunching devices, differing in details of construction from those herein shown and described.

A plate 110, secured to a shaft 109, extends horizontally beneath the die or tobacco-receptacle 71, when said die is located beneath the plunger 72, and is held in this position by a spring 111. When the plunger 72 descends and forces the tobacco through the die 71, the plate 110 is moved to a vertical position and allows the tobacco to descend from the die to the pocket in the apron 105 immediately below it. When the plate 110 is moved to a vertical position, it is retained there by the spring 111, which engages with the flat side of the hub 110^a, and when in this position the plate aids in smoothing out a binder placed

on the apron when the rolling-table is moved transversely below it. When the table has completed about half of its backward movement, a lug 112 on the table engages with the plate 110 and moves it backwardly a short distance, so as to disengage the spring 111 from the flat portion of the hub 110^a, and the plate, by means of the spring, then assumes its normal horizontal position. Arms 113, secured to the upper ends of the uprights 54 55, serve to support the cigar-molds, within convenient reach of the attendant. The cigar-bunch is automatically delivered to the hooks 108, from which they are removed and placed in the mold 114.

The construction of the apparatus has now been fully explained and the operation has been indicated; but in order that my invention may be more fully apprehended I will briefly describe the operation of the apparatus without a detailed description of its construction.

The pulley 5 being continuously driven, the machine is thrown into operation when the operator depresses the treadle 20, which locks the clutch and causes pinion 12 to be revolved. Motion is transmitted to the gear 16, which, in revolving, intermittently actuates the pinion 14. Each set of teeth 201 203 in the gear 16 is equal to half the number of teeth in the pinion 14, so that as each set of teeth 201 or 203 engage with the pinion 14 the half-revolution of the pinion is caused. One half-revolution of the pinion 14, through the connections hereinbefore referred to, carries the die 71 from its position under the plunger 72 into position under the plunger 73, and also carries the rolling-table the extreme limit of its backward movement. (See Fig. 16.) The other half-revolution of the pinion 14, caused by the second set of teeth, moves the rolling-table forward and also moves the die 71 into position under the plunger 72. The pitman and link connections which operate the rolling-table and die also operate the feeding devices of the tobacco-trays. The lower tray in the frame or rack 86 is fed forward step by step under the table 79, and when in position under the opening 76 in the guideway of the die the plunger 73 is caused to descend by means of its connections with the shaft 29 and the die is forced downwardly against the pressure of the springs 78 of the shoes 82 and takes up a charge of tobacco. When the plunger 73 moves upwardly, the springs 78 lift the die and the attendant devices to the guideway 69. The pinion 14 is then actuated by the second set of teeth on the gear 16 to return the die to the position under the plunger 72. The plunger 72 is then caused to descend and force the tobacco from the die 71 into the pocket of the apron 105 immediately below. At the same time the plate 110 is turned to a vertical position, as shown in Fig. 17, and when in this position serves to smooth out the tobacco upon a binder on the apron. When the plunger 72

has returned to its elevated position, the rolling-table is carried backwardly and rolls up the bunch of tobacco and delivers it to the hooks 108. During the backward movement of the table the stop 112, abutting against the plate 110, causes it to assume its normal horizontal position, where it is held by the spring 111.

It will be understood that while either of the plungers 72 or 73 is operating, the rolling-table and the die are not moved horizontally, because at this time the teeth on the pinion 16 are not in gear with the pinion 14. The mechanism is so arranged that at this time the blank spaces 200 and 201 are passing by the pinion. When the blank spaces are thus passing by the pinion 14, the stud in the arm 13 engages with the pinion 14 to hold it stationary. When either set of teeth has arrived at the pinion 14, the arm 13 is thrown out of engagement with the pinion 14 by one of the stops 15 on the pinion 16. In like manner when the rolling-table and die are being moved horizontally the plungers are stationary and the pinions 26 and 27 are locked by means of the spring-stops 116 and 117. Just before the operation of either of these pinions by the teeth *a* on the wheel 25 a cam 115 lifts the spring-stop and permits the pinion to be actuated. As soon as the operator takes his foot from the treadle 20, the spring-stud 1*, engaging with the arm 11, causes it to unlock the clutch.

I have thus described the construction and operation of my machine; but obviously many changes may be made in the general organization and in the details of construction without departing from the novel features of my invention.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of bunching devices, tobacco-feeding devices, a cutting-die movable horizontally from its position over the bunching devices into position near the tobacco-feeding devices, means for forcing the cutting-die into the tobacco to receive a charge therefrom, and devices for carrying the cutting-die back into position over the bunching devices.

2. The combination, substantially as hereinbefore set forth, of the main frame, the frame carrying a vertical series of tobacco-filled trays, devices for feeding the trays step by step beneath a vertically-reciprocating plunger, bunching devices, means for operating them, a horizontally-reciprocating cutting-die, means for forcing the cutting-die downwardly to receive a charge of tobacco, devices for elevating the die and for carrying it back into position over the rolling-table, and means for discharging the tobacco from the cutting-die.

3. The combination, substantially as hereinbefore set forth, of the main frame, a frame containing a vertical series of tobacco-filled trays, devices for feeding the trays into posi-

tion beneath a vertically-reciprocating plunger, a feed-roll engaging with the upper surface of tobacco in the tray, bunching devices, means for operating them, a cutting-die, means for moving the cutting-die from its position over the bunching devices into position over the tobacco in the tray, devices for causing the die to take up a charge of tobacco, means for returning the filled die into position over the bunching devices, and a plunger for discharging the tobacco from the die.

4. The combination, substantially as hereinbefore set forth, of bunching devices, a cutting-die, the main operating-shaft of the machine, connections between the bunching devices, the cutting-die, and the main operating-shaft, whereby they are simultaneously operated, a guideway for the cutting-die, a plunger for moving the cutting-die vertically to take up a charge of tobacco from a tray, a plunger for discharging the tobacco from the cutting-die, and connections between the plungers and the main driving mechanism.

5. The combination, substantially as hereinbefore set forth, of a tobacco-tray, devices for moving it horizontally, and a roughened roller simultaneously actuated with the tray-feeding devices and engaging with the upper surface of the tobacco in the tray.

6. In a cigar-bunching machine, the combination of bunching devices, a tobacco-receptacle, a hinged plate arranged when in a horizontal position to close the receptacle and when in a vertical position to co-operate with the bunching devices to smooth out the binder, means for moving the bunching devices athwart the lower edge of the plate, means for holding the plate in its horizontal and vertical positions, and a plunger for forcing the tobacco from the receptacle and for moving the plate from its horizontal to its vertical position.

7. The combination, substantially as hereinbefore set forth, of the main frame, cigar-bunching devices, means for operating them, the cutting-die, guide-rails in which the cutting-die is moved horizontally, means for discharging tobacco from the die, the removable sections of the guide-rails, means for normally holding these sections in position in the rails, and means for moving the cutting-die with the removable sections of the rails vertically, for the purpose specified.

8. The combination, substantially as hereinbefore set forth, of the bunching devices, means for operating them, a cutting-die, guide-rails in which the die is reciprocated horizontally, means for discharging tobacco from the die, tobacco-tray-feeding devices, means for moving the cutting-die from its position over the bunching devices into position near the tobacco-tray-feeding devices, the removable sections of the rails, the spring-controlled shoes which normally hold these sections in engagement with the rails, and means for depressing the die and rail sections.

9. The combination, substantially as here-

inbefore set forth, of the rack or frame, a vertical series of tobacco-trays therein, the carriers for these trays having rack-bars, a pawl adapted to engage with these rack-bars, means for actuating this pawl to feed the trays, a tobacco-cutting die, means for operating it to take up a charge of tobacco from the tray, bunching devices, and means for conveying the die to the bunching devices.

10. The combination, substantially as hereinbefore set forth, of bunching devices, the cutting-die, a vertically-reciprocating plunger, the cross-head to which it is connected, guides for this cross-head, means for reciprocating the cross-head vertically, means for operating the bunching devices, means for coincidentally moving the cutting-die from its position over the bunching devices into position near the tobacco-feeding devices, a vertically-reciprocating plunger for forcing the die downwardly to take up a charge of tobacco, the cross-head to which the plunger is connected, guides in which the cross-head moves vertically, means for reciprocating the plunger, means for feeding tobacco-trays into position beneath the cutting-die, and means for conveying the cutting-die to the bunching devices.

11. In a cigar-bunching machine, the combination of the supporting-frame, driving mechanism mounted therein, a gear-wheel, operatively connected with the driving mechanism, a pinion adapted to engage with said gear-wheel and from which it receives at each actuation a half-revolution only, a shaft on which the pinion is mounted, bunching devices, a cutting-die, tobacco-tray-feeding devices, and connections between the bunching devices, the cutting-die, the tobacco-tray-feeding devices, and the shaft of the pinion for operating them.

12. The combination, substantially as hereinbefore set forth, of driving mechanism, a pinion 14, the shaft on which it is mounted, a crank-arm on this shaft, bunching devices, a cutting-die, a tobacco-tray, a pawl engaging therewith, and connections between the bunching devices, the cutting-die, the pawl, and the crank on the shaft of the pinion 14, whereby they are simultaneously moved.

13. The combination, substantially as hereinbefore set forth, of bunching devices, a horizontally-movable cutting-die, means for operating it, a plunger for discharging tobacco from the cutting-die, a plunger for forcing the cutting-die into a tobacco-filled tray, means for holding the tobacco-tray and the rolling-table stationary while the cutting-die is being forced into the tobacco, and means for holding the plunger which operates the cutting-die stationary while the cutting-die is being moved horizontally and while the bunching devices and the tobacco-tray-feeding devices are being operated.

14. In a cigar-bunching machine, the combination of the main driving-shaft, the driving-pulley, a clutch for connecting it to the driving-

shaft, a treadle for operating the clutch, a
shaft about which it turns, a pinion mounted
on the driving-shaft, a gear-wheel meshing
with this pinion, a spring-controlled lug car-
5 ried by this gear-wheel, the arm 11, connected
with the treadle-shaft and which engages the
lug on the gear-wheel each time that it re-
volves, the crank-shaft 30, a pinion thereon,
gearing connecting this pinion with the pin-
10 ion on the main driving-shaft, bunching de-

vices, the cutting-die, connections between the
rolling-table, the cutting-die, and the crank-
shaft, means for forcing the cutting-die into
a tobacco-filled tray, means for moving the
die horizontally, and means for forcing the 15
tobacco from the cutting-die.

JOSEPH DELA MAR.

Witnesses:

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